PROCEEDINGS

OF THE

MADRAS GOVERNMENT

IN THE

PUBLIC WORKS DEPARTMENT,

FOR THE

MONTH OF NOVEMBER

1875.

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PUBLIC WORKS DEPARTMENT.

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571, 272	*Repair of certain Tanks, Cuddapah District.*— The estimates amounting to Rupees 1,490 for the —, sanctioned with remarks.	24th Nov. No. 3,371.	....	....	Ibid
573, 574	*Opening out tracks in the Rumpa Country, Godavery District.* — Proceedings of the Financial Department intimating that provision be made for — from savings in allotments for other public works, recorded with remarks.	24th Nov. No. 3,372.	....	8th Mar. 1875, No. 60, Mis. 7th Oct. 1875, Nos. 95, 96.	6222

1 Index numbers of the Proceedings.	2 Subjects.	3 Dates of Proceedings.	4 Date of report to Secretary of State for India.	5 Numbers and dates of previous Proceedings.	6 Page.
575—580	*Deputy Chief Engineer, Public Works Department.* — Certain arrangements made in connection with the appointment of Colonel Foord as for the direction of the technical work of the department.	1875. 24th Nov. No. 3,373.	....	17th Mar. 1875, Nos. 437, 438. 31st July 1875, Nos. 839, 840. 26th July 1875, Nos. 672—674. 24th June 1875, Nos. 494—496. 2nd Nov. 1874, Nos. 28—30. 12th Sept. 1871, Nos. 186—190. 14th Sept. 1872, Nos. 217—219.	6223
581, 582	*Office Record-room for the Registration Department, Tanjore District.*— Plans and estimates for constructing an — referred to the Judicial Department with remarks.	25th Nov. No. 3,374.	....	9th July 1874, No. 91, Mis.	6242
583, 584	*Unserviceable Scientific Instruments.*—Issuing instructions for the forwarding to the Government Mathematical Instrument maker for repair, all —.	25th Nov. No. 3,375.	....	29th April 1868, Nos. 564, 565. 5th Feb. 1874, Nos. 90, 91.	6243
585, 586	*Range Office for the Central Delta, Godavery District.*— Estimate amounting to Rupees 4,750 for constructing a —, sanctioned.	25th Nov. No. 3,376.	....	13th Mar. 1871, Nos. 319, 320. 18th April 1871, Nos. 220, 221. 26th Jan. 1875, Nos. 485, 486. 15th Oct. 1875, Nos. 259—283.	6244
587, 588	*Police huts at Punchaknepad, Kurnool District.*— Intimating to the Controller of Public Works Accounts that the — are to be erected by the Police Department.	26th Nov. No. 3,377.	....	29th Oct. 1875, Nos. 125, 126. Jud. Dept. 12th Mar. 1875, Nos. 69, 70. 1st April 1875, No. 4, Mis. P. W. D. 5th Nov. 1875, No. 42, Mis. 14th Aug. 1875, No. 113, Mis.	Ibid
589, 590	*Funds.*—The grant of Rupees 50,000 under "Provincial Civil Buildings" distributed to certain works.	26th Nov. No. 3,378.	....	26th May 1875, No. 256, Mis. 6th July 1875, No. 33, Mis.	6245
591, 592	*Inspection of State Railway works prior to opening.*—Circular from the Government of India on the subject of the —, communicated to the Consulting Engineer for Railways.	26th Nov. No. 3,379.	....	....	6247
593, 594	*Marathony large tank, Tinnevelly District.*—The estimate of Rs. 220 for repairing the escape of the —, sanctioned.	26th Nov. No. 3,380	....	....	6257

1 Index numbers of the Proceedings.	2 Subject.	3 Dates of Proceedings	4 Date of report to Secretary of State for India.	5 Numbers and dates of previous Proceedings.	6 Page
595, 596	*Indent for Stores required for the Locomotive Department, Madras Railway.*—Letter from the Government of India confirming the sanction accorded by the Madras Government for the transmission of an — to the Board of Directors for compliance.	1875. 26th Nov. No. 3,381.	....	11th Oct. 1875, Nos. 146—148.	6258
597, 598	*Accident, Madras Railway.*—Report of a fatal accident to a cooly on the 17th October 1875, recorded.	27th Nov. No. 3,382.	....	....	Ibid
599, 600	*Taluq Overseer M. Chinnasawmy Pillay.*—Intimating that—can only draw the travelling allowance of his grade in addition to the deputation allowance for charge of a sub-division.	27th Nov. No. 3,383.	....	12th Nov. 1873, Nos. 185—187. 16th Dec. 1874, Nos. 326, 327. 17th Feb. 1875, Nos. 429, 430. 1st April 1875, Nos. 3, 4. 20th July 1875, Nos. 486, 487.	6259
601, 602	*Fees.*— Intimating that the G.O. prohibiting officers from receiving — direct from any Railway Company without the special sanction of the Government of India is not applicable to the Officers of the Medical Department.	27th Nov. No. 3,384.	....	8th May 1875, No. 65, Mis. 24th July 1875, No. 186, Mis. 25th Oct. 1875, No. 138, Mis.	6260
603, 604	*Feeder roads and roads of access to Railway Stations.*— Proceedings of the Government of India forwarding copy of Resolution on the subject of —, communicated to the Financial Department.	27th Nov. No. 3,385.	....	22nd Nov. 1873, Nos. 322, 323. 16th Jan. 1875, Nos. 288, 289. 10th Sept. 1875, Nos. 234—237. 14th Oct. 1875, Nos. 231—233.	Ibid
605, 606	*Rate of interest to be allowed on the Special Funds of Guaranteed Railway Companies.*— Resolution of the Government of India on the subject of the —, communicated to the Consulting Engineer.	27th Nov. No. 3,386.	....	4th Aug. 1875, Nos. 44, 45. 4th Aug. 1875, No. 46. 29th Sept. 1873, Nos. 417, 418.	6265
607, 608	*Casualty, Madras Railway.*—Report of the death of a third-class passenger at Arconum Station on 12th November 1875, recorded.	27th Nov. No. 3,387.	....	....	6266
609, 610	*Actual area of Irrigation under rainfed tanks, Madura District.* —District Engineer to transmit any definite information he possesses relative to the —, the extent of the catchment basins of which is known to the Chief Engineer for Irrigation.	27th Nov. No. 3,388.	....	27th Oct. 1875, Nos. 416, 417.	6268

1 Index numbers of the Proceedings.	2 Subjects.	3 Dates of Proceedings.	4 Date of report to Secretary of State for India.	5 Numbers and dates of previous Proceedings.	6 Page.
611, 612	*Funds.*—Rupees 150, Tools and Plant Capital from South Arcot held at disposal of Government and a similar sum allotted to the District from Tools and Plant, Revenue, at the disposal of Government.	1875. 27th Nov. No. 3,389.	....	....	6268
613, 614	*Cement experiments, Godavery District.*—Report of the further progress with the — noticed with satisfaction, and communicated to all Superintending and District Engineers.	27th Nov. No. 3,390.	....	14th Sept 1875, Nos. 277, 278. 21st Jan. 1875, Nos. 358—360.	6269
615, 616	*Old Military Barracks at Puttur, South Canara.*—Intimating that the monthly rent of Rupees 10 for the — cannot be reduced.	27th Nov. No. 3,391.	....	21st May 1875, Nos. 383, 384. 30th July 1875, Nos. 833, 834. 19th Nov. 1875, Nos. 3,305, Mis.	6278
617, 618	*Local Fund Works, Madura.*—Passing orders on letter from the District Engineer, offering explanation on the late submission of certain estimates in connection with the —.	27th Nov. No. 3,392.	....	27th May 1875, Nos. 522—525. 29th July 1875, Nos. 801, 802. 13th Sept. 1875, Nos. 269–272. 15th Oct. 1875, Nos. 247, 248. 28th Oct. 1875, No. 202, Mis.	9279
619, 620	*Assistant Engineers from the Royal Civil Engineering College.*—The Controller of Public Works Accounts informed that the — now joining will be absorbed as vacancies occur.	29th Nov. No. 3,393.	....	....	6280
621	The Government of India informed that the design and estimate for converting the Public Works Workshops into a Military Hospital, forwarded with letter No. 2,365, dated 16th August 1875, have not yet been received, and attention calling to the delay in conveying sanction to the prosecution of the work.	29th Nov. No. 3,394.	....	....	6281
622, 623	*Cheyaur bridge, Madras Railway.*—Ordered that the letter from the Agent, Madras Railway, submitted by the Consulting Engineer relative to the probable date of the completion of the — be forwarded to the Government of India.	30th Nov. No. 3,395.	....	6th Nov. 1875, Nos. 144, 145.	Ibid
624	Copy of the above forwarded to the Government of India.	30th Nov. No. 3,396.	....	....	6282
625, 626	*Mr. Lowry.*— Removing him from the Chingleput to the Salem District.	30th Nov. No. 3,397.	....	27th July 1875, Nos. 726, 727.	Ibid
627—630	*European Detail Hospital at Trichinopoly.*— A grant of Rupees 2,500 made from the Repair Funds at the disposal of the Chief Engineer for re-roofing the —.	30th Nov. No. 3,398.	....	14th April 1875, Nos. 354, 355. 13th Sept. 1875, No. 327.	Ibid

1 Index numbers of the Proceedings.	2 Subjects.	3 Dates of Proceedings.	4 Date of report to Secretary of State for India.	5 Numbers and dates of previous Proceedings.	6 Page.
631, 632	*Adjustment for charges for Tools and Plant between Provincial and Imperial Funds.* — The Controller of Public Works Accounts requested to report in detail the arrangements he suggests for the —.	1875. 30th Nov. No. 3,399.	....	9th Nov. 1874, Nos. 138, 139. 30th Aug. 1875, Nos. 515, 515A. 11th Sept. 1875, Nos. 260, 261. 3rd Nov. 1875, Nos. 42, 43.	6283
633, 634	*Statement of outlay on Repairs and Minor New Works Agricultural for September* 1875.— Passing orders on the — submitted by the Chief Engineer for Irrigation.	30th Nov. No. 3,400.	....	2nd Oct. 1874, Nos. 51, 52. 12th Aug. 1875, Nos. 206, 207. 6th Oct. 1875, Nos. 69, 70.	6286
635, 636	*Advances made to Assistant Engineers from the Royal Indian Civil Engineering College.*— Controller of Public Works Accounts to recover the — at the rate of one-sixth of the monthly salaries.	30th Nov. No. 3,401.	....	16th Jan. 1875, Nos. 293A, 293C.	6289
637, 638	*Reports on the works of the Upper and Lower Sections of the Madras Irrigation and Canal Company for October* 1875.—Endorsement of the Chief Engineer for Irrigation submitting with remarks the —, recorded.	30th Nov. No. 3,402.	....	....	6290
639, 640	*Overseer's Establishments, Jeypore Ghaut Range.*— Employment of a Gumastah and two Lascars for the — sanctioned, the cost being met from the Budget provision for Petty Establishment.	30th Nov. No. 3,403.	....	9th Oct. 1874, Nos. 255, 256.	6293
641, 642	*Establishment.*— Pay to the — employed under Bowyer Smyth from date of his departure to England to the 6th November 1875, passed as a special case.	30th Nov. No. 3,404.	....	19th Jan. 1875, Nos. 332A, 332B. 27th Oct. 1875, Nos. 424, 425.	6294
643, 644	*Mr. Nordmann, Executive Engineer, Jeypore Range.*— Declining to sanction the claim of — for half travelling allowance while at Waltair.	30th Nov. No. 3,405.	....	9th Sept. 1865, Nos. 206, 207. 22nd June 1869, Nos. 479—481. 12th Nov. 1872, Nos. 192—193. 15th Aug. 1873, Nos. 242, 243. 10th Nov. ,	6295
645, 646	*Combined Post and Telegraph Office, Ootacamund, Nilgiris.* — District Engineer directed to complete the plan and estimates in connection with the —, and to state in what proportions the outlay should be divided between the two Departments.	30th Nov. No. 3,406.	....	2nd March 1874, No. 15, Mis. 3rd Feb. 1875, Nos. 82, 83. 15th April 1875, Nos. 370, 371. 15th June 1875, Nos. 340, 341. 27th July 1875, Nos. 710—711. 10th Sept. 1875, Nos. 249—251.	6296

1 Index numbers of the Proceedings.	2 Subjects.	3 Dates of Proceedings.	4 Date of report to Secretary of State for India.	5 Numbers and dates of previous Proceedings.	6 Page
647, 648	*Ponniar Anicut, South Arcot.*— The revised estimate of Rupees 56,060 in lieu of the approximate estimate of Rupees 50,000 for the extension and improvements to the —, sanctioned with remarks.	1875. 30th Nov. No. 3,407.	....	16th July 1875, Nos. 418, 419. 26th July 1875, Nos. 645, 646. 4th Oct. 1875, Nos. 47, 48.	6298
649, 650	*Extension of the East Side Channel, Nizampatam Canal, Kistna District.*— The reduced estimate of Rupees 9,050 for the —, sanctiontioned, and application made to the Government of India to make the amount available.	30th Nov. No. 3,408.	....	29th Sept. 1875, Nos. 632, 633.	6302
651	The Government of India requested to make a supplemental grant of Rupees 9,050 under Agricultural Ordinary to meet the cost of extending the Eastern Side Channel of the Nizampatam Canal.	30th Nov. No. 3,409.	....	....	6303
652, 653	*Public Works in Trichinopoly District.*— Proceedings of the Board of Revenue submitting Collector's report on the construction and repair of — during 1874-75, communicated to the District Engineer.	30th Nov. No. 3,410.	....	1st Aug. 1874, No. 10, Mis. 27th Oct. 1874, Nos. 587, 588.	6304
654—658	*Revised classification of Provincial Outlay.*— The —, submitted by the Controller of Public Works Accounts, approved for adoption, and to be in future strictly followed in the preparation of Budget Estimates and Accounts.	30th Nov. No. 3,411.	....	1st Oct. 1873, Nos. 25, 26. 28th June 1875, Nos. 528—531.	6308
659, 660	*Delhi Camp of Exercise.*— Letter from the Chief Engineer for Railways nominating certain officers to attend the Committee to assemble at the — to experiment on the embarking and disembarking of troops, &c., on to, and from, Railway trains.	30th Nov. No. 3,412.	....	1st Nov. 1875, Nos. 5—8.	6310
661	Copy of the above forwarded to the Government of India.	30th Nov. No. 3,413.	....	....	6311

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PUBLIC WORKS DEPARTMENT.

TABULAR STATEMENT OF MATTERS OF ROUTINE,

FOR THE MONTH OF NOVEMBER 1875.

GOVERNMENT OF MADRAS.

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
1	*Presidency Workshops.*—Proceedings, Revenue Department, communicating to the Collectors of the Ganjam and Kistna Districts Order in Department Public Works reviewing the Financial operations of the — for 1874-75, and requesting them to arrange for the immediate payment of the amounts outstanding against them, communicated to the District Engineer, Presidency.	1st Nov. 1875.	8th Sept. 1875, Nos. 172, 173.
2	*Correspondence.*—The Consulting Engineer for Railways furnished with copies of Traffic Return, Great Indian Peninsula Railway Company, for week ending 2nd October 1875, and do. Bombay, Baroda, and Central India Railway Companies, for week ending 9th October 1875.	1st do. do.	....
3	*Jampan and Dandee.*—Letter from the Executive Engineer, Umballa Division, intimating the despatch of a — per passenger train, communicated to the Consulting Engineer for Railways.	1st do. do.	....
4	*Correspondence.*—Letter from the Consulting Engineer for Railways requesting to be favored with twenty spare copies in future. Lodged.	2nd do. do.	....
5	*Serjeant Spencer.*—Letter from the Acting Superintending Engineer, Godavery District, furnishing additional information regarding the conduct of — when an Overseer in Vizagapatam and Godavery. Lodged.	2nd do. do.	....
6	*Transfer of Rupees 6,286 from Assignment to Central Provinces to Madras.*—Proceedings, Financial Department, communicating sanction of the Government of India to the —, or charges in connection with Bhadrachallum and Rakapalli Taluqs, communicated to the District Engineer, Godavery.	2nd do. do.	....

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
7	*Repairs to Civil Buildings in the Upper Godavery Taluqs.*—Letter from the District Engineer, Godavery District, reporting that 350 Rupees per annum will suffice for —. Recorded.	2nd Nov. 1875.	29th May. 1874, Nos. 582—586. 20th Aug. 1874, Nos. 499C, 499D. 4th Jan. 1875, Nos. 19—21. 5th June 1875, Nos. 115, 116. 19th June 1875, No. 1,309, Finl. 21st June 1875, Nos. 454, 454A, & 455. 7th Oct. 1875, No. 1,968.
8	*Mr. A. T. Pringle—Superintendent, Record Department.*—Disallowance bill of — for salary for October. Lodged.	2nd do. do.	
9	*Dr. Burnell's Palæography.*—Proceedings, Revenue Department, sanctioning payment of the bill, amounting to Rupees 382, for thirty copies of —, and observing that the number now sent will answer present requirements. Lodged.	2nd do. do.	
10	*Correspondence.*—Letter from the Home Government acknowledging the receipt of certain letters. Lodged.	2nd do. do.	
11	*Correspondence.*—Letter from the Home Government acknowledging the receipt of certain letters. Lodged.	2nd do. do.	
12	*Lieutenant A. Awdry.*—Proceedings, Financial Department, communicating confirmation by the Government of India of the Proceedings of the Madras Government granting — Rupees 1,500 on account of passage to and from England on duty. Recorded.	2nd do. do.	
13	*Correspondence.*—The Collector of South Arcot furnished with four copies of G.O., No. 1,047, dated 15th April 1875.	3rd do. do.	
14	*Correspondence.*—The Acting Superintending Engineer, Godavery District, furnished with the plans and estimates for the experimental gearing for working the Dowlaishweram under sluices.	3rd do. do.	

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
15	*Revenue Account of the South India Railway for the half-year ended 30th June* 1875.—Letter from the Consulting Engineer for Railways submitting a note on the — for embodiment in the pamphlet containing the forms. Lodged.	3rd Nov. 1875.	....
16	*Uncovenanted Service.*—Proceedings, Financial Department, requesting the officers concerned to furnish the returns required by the Government of India of all first appointments of Europeans made in any branch of the Public Service since February 1872 to offices in which the monthly salary is not less than Rupees 250, communicated to the Controller of Public Works Accounts for attention.	3rd do. do.	....
17	*Masonry works on road from Arconum to Conjeveram.*—Proceedings, Financial Department, sanctioning revised estimate for Rupees 7,100 for constructing —, subject to the remarks of the Chief Engineer regarding the bridges proposed to be built, communicated to the District Engineer, North Arcot.	3rd do. do.	....
18	*Correspondence.*—The Government of India informed of the list of books on Sanitary Science, required.	3rd do. do.	....
19	*Fire Code*—Copies of — distributed to certain officers.	3rd do. do.	....
20	*Irrigation in the Vygay River.*—Report on the subject of —. Recorded.	3rd do. do.	....
21	*Correspondence.*—The District Engineer, Cuddapah, furnished with the estimate, &c., for repairing the Taluq Cutcherry at Budwail.	3rd do. do.	....
22	*Canal Act.*—Proceedings, Financial Department, referring for the opinion of the Board of Revenue whether the — may not be applied to the East Coast Canal. Recorded.	4th do. do.	....

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
23	*Instruments required for the Civil Engineering College, Madras.*—Proceedings, Educational Department, sanctioning the purchase of — for the official year 1875-76. Recorded.	4th Nov. 1875.	....
24	*Apparatus for teaching Physical Science*—Proceedings, Educational Department, sanctioning the repair of the — recently received from England, communicated to the District Engineer, Presidency.	4th do. do.	....
25	*Road from Kottapatam, viz., Ongole to Cumbum.*—Proceedings, Financial Department, sanctioning conditionally the estimate, amounting to Rupees 25,600, for improving and completing certain portion of the —, communicated to the District Engineer, Nellore.	4th do. do.	....
26	*Accounts.*—Proceedings, Financial Department, communicating resolution of the Government of India laying down the procedure for the adjustment of petty charges made by one province on account of another, communicated to the Controller, Public Works Accounts.	4th do. do.	16th Jan. 1875, No. 71, Finl. Dept.
27	*Adjustment of the pay of officers transferred from Military to Civil duty, or vice versâ.*—Proceedings, Financial Department, communicating resolution of the Government of India regarding —, communicated to all officers of the Department Public Works.	4th do. do.	....
28	*Tanks belonging to private proprietors and commanding Railway Lines in Madras Presidency*—Proceedings, Board of Revenue, passing orders regarding —. Recorded.	4th do. do.	....
29	*Annual Progress Report, Public Works Department, Punjab, for 1874-75.*—Docket from the Government of Punjab forwarding a copy of —.	4th do. do.	....
30	*Roads in the Salem District.*—Proceedings, Financial Department, considering the report on the condition of the — during 1874-75 to be on the whole satisfactory, communicated to the District Engineer, Salem.	4th do. do.	....

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
31	*Tunkum Bungalow.*—Letter from the District Engineer informing that the estimate of — returned was much damaged. Lodged.	4th Nov. 1875.	....
32	*Unanswered Reference List.*—Passing orders on — forwarded by the Controller of Public Works Accounts for the half-year ending 31st March 1875.	5th do. do.	1st Aug. 1874, Nos. 29, 30. 25th Sept. 1874, Nos. 109, 110. 6th Mar. 1875, Nos. 179, 180. 20th Sept. 1875, Nos. 460, 461. 15th Oct. 1875, Nos. 252, 253. 14th April 1874, No. 56, Mis.
33	*Correspondence.*—Letter from the Consulting Engineer for Railways stating that the Agent, Madras Railway, has no copies of the map referred to in the 46th Report of the Board of Directors. Lodged.	5th do. do.	....
34	*Do.*——The Officiating District Engineer, Malabar, furnished with the estimate for painting doors and windows of European Barracks, &c., of Her Majesty's 43rd Light Infantry at Cannanore.	5th do. do.	....
35	*Madras Railway Commission Report.*—Government of India informed of the despatch on the 29th September per steamer *Australia* of twenty-five copies of the—.	5th do. do.	....
36	*Taluq Cutcherry at Ghooty.*—Proceedings, Judicial Department, sanctioning estimate for Rupees 775 for repairing the —, communicated to the District Engineer, Bellary, with instructions.	5th do. do.	....
37	*Cocanada Harbour.*—Proceedings, Marine Department, communicating letter from the Master Attendant, Madras, submitting two statements from the Master Attendant, Cocanada, relative to the condition of dredge No. 2 and twelve punts recently taken charge of by that officer from the Department of Public Works. Recorded.	5th do. do.	21st Sept. 1875, No. 138. 21st Sept. 1875, Nos. 500—502. 10th Aug. 1875, No. 68. 12th July 1875, Nos. 348, 349. 14th July 1875, No. 104.
38	*Do.*—Proceedings, Marine Department, communicating letter from the Master Attendant, Madras, reporting that his department has taken charge of all loose materials collected for the southern revetment of this harbour, and that the work, as far as it has been completed, is now in charge of the Master Attendant of that port. Recorded.	5th do. do.	16th Oct. 1875, No. 2,050, F.D. 21st Sept. 1875, Nos. 500—502. 2nd Oct. 1875, No. 10. 13th Sept. 1875, No. 80.

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
39	*Municipal Water Supply.*—Proceedings, Financial Department, communicating letter of the Accountant-General stating that the balance of interest due by the Madras Municipality will be adjusted on the amount being credited to the Civil Department in the accounts of the Controller of Public Works Department. Recorded.	5th Nov. 1875..	....
40	*Railway Fences.*—Proceedings, Judicial Department, communicating to all District Magistrates and the Magistrates of the Town Police, Proceedings of Government, Public Works Department, directing that every case in which a Railway self-closing accommodation gate is found fastened back be brought to the notice of the Magistrate. Recorded.	5th do. do.	....
41	*Yanadi School at Sriharikottah, Nellore District.*—Proceedings, Educational Department, ordering the work required in connection with the — to be carried out by the Educational Department. Recorded.	5th do. do.	7th Oct. 1875, No. 40.
42	*Police Buildings.*—Proceedings, Judicial Department, sanctioning the erection of three huts at Penchakulpaud instead of at Veldoorty, communicated to the District Engineer, Kurnool.	5th do. do.	....
43	*Quarters for the Commissary of Ordnance.*—Proceedings, Military Department, communicating letter from the Quartermaster-General stating that His Excellency the Commander-in-Chief has approved the work of constructing the third storey for the — Fort St. George, being included in the list of Military New Works for 1876-77, communicated to the District Engineer, Presidency.	5th do. do.	27th Oct. 1875, Nos. 368, 369.
44	*Original Suit No.* 748 *of* 1874 *on the file of the Madura District Munsif's Court regarding a tank constructed by a ryot.*—Proceedings, Revenue Department, passing orders regarding the —, communicated to the District Engineer, Malabar.	6th do. do.	28th July 1875, Nos. 781, 782.
45	*Salt Traffic.*—Proceedings, Board of Revenue, requesting the Collectors of Chingleput, Bellary, and Cuddapah to explain if possible of the falling off in the — between Madras and North-west Line of the Madras Railway in 1874. Lodged.	6th do. do.	....

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
46	*Correspondence.*—Revised indent for letter-weighing scale counter signed and returned to the Superintending Engineer, Chingleput.	6th Nov. 1875.	.........B
47	*Maps of the Chingleput District.*—Eight — forwarded to the Superintending Engineer, Chingleput, and a receipt sent to Superintendent, Revenue Survey.	6th do. do.	18th Oct. 1875, No. 100, Mis. B
48	*Correspondence.*—Papers relating to the subject of a threatened law suit by the Contractor of Conjeeveram Civil Dispensary, returned to the Superintending Engineer, Chingleput District.	6th do. do.	.........B
49	*Correspondence.*—The Deputy Collector in charge of the Treasury furnished with 24 Cheque Books.	6th do. do.	....A....
50	*Schedule of Rates.*—Letter from the District Engineer, Presidency, informing of having forwarded the — for the current year. Lodged.	6th do. do.	....A....
51	*Accounts.*—Return of grants, expenditure and balance of the Public Works Department on the 20th October 1875. Lodged.	6th do. do.	....A....
52	*His Royal Highness the Prince of Wales.*—Proceedings, Political Department, approving of the arrangements connected with arrival of — at Royapooram Terminus and laying of the Foundation Stone of Harbour Works. Recorded.	6th do. do.	....B....
53	*Correspondence.*—The Consulting Engineer for Railways furnished with copies of letter from the Directors of the South Indian Railway Company to their Agent at Negapatam, No. 56, dated 1st October 1875; Statement and classification of issues, South India Railway, for July, August and September 1875; Traffic return, Great Indian Peninsula Railway Company, for week ending 19th October 1875; Traffic return, Bombay, Baroda and Central India Railway Company, for week ending 9th October 1875; and Statement of Capital Accounts of the Indian Railway and other Guaranteed Companies on the 30th September 1875.	6th do. do.	.... R

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
54	*Correspondence.*—The Consulting Engineer for Railways furnished with three spare copies of G.O., No. 2,197, dated 11th October 1875 and nine copies of G. O., No. 2,074, dated 17th December 1867, and informed that no more copies are available.	6th Nov. 1875.	....
55	*Accounts.*—Statement of objectionable items in the accounts of Range Officers for the month of April 1875 under Imperial Roads and Buildings.	8th do. do.	....
	Lodged.		
56	*Masonry Works on the road from Palamcottah to Madura.*—Proceedings, Financial Department, sanctioning revised estimate submitted by the Board of Revenue for repairing and improving the — for Rupees 5,500, communicated to the District Engineer, Tinnevelly.	8th do. do.	13th Jan. 1875, No. 90. 20th May 1875, No. 1,104.
57	*Correspondence.*—The Superintending Engineer, Chingleput, furnished with the plan and estimate for providing doors, half-doors, rattan mats, &c., to the Collector's Office at Homes' Gardens.	8th do. do.	....
58	*Correspondence, Skeleton Maps of the Roads in the 6th Division.*—The Superintending Engineer, Tanjore, furnished with twelve copies of — lithographed in December 1855.	8th do. do.	....
59	*Railway.*—Docket from the Consulting Engineer for Railways forwarding *Nil* statement of cases of fire for quarter ending 30th September 1875.	8th do. do.	28th July 1875, Nos. 773, 774.
	Recorded.		
60	*Postal Works.*—The Postmaster-General furnished with a memorandum of the manner in which the Minor Works allotment of Rupees 10,000 for — in the Madras Circle for 1875-76 has been utilized, and of the balance still unappropriated.	9th do. do.	....
61	*Taluq Cutcherry at Raidrug, Bellary District.*—Proceedings, Judicial Department, passing orders on Proceedings, Judicial Department, recording Proceedings, Board of Revenue, submitting the report of the Collector of Bellary on the sale of the old —.	9th do. do.	8th Jan. 1869, Nos. 94, 95.

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
62	*Coach House attached to the Police Commissioner's Office, Madras.*—Proceedings, Financial Department, authorizing the Accountant-General to place the amount of Rupees 40 at the disposal of the Public Works Department for repairing — communicated to the District Engineer, Presidency.	9th Nov. 1875.	3rd Mar. 1875, Nos. 117, 118. 18th Jan. 1875, No. 131.
63	*Taluq Cutcherry at Pullumpett, Cuddapah District.*—Proceedings, Judicial Department, passing orders on Public Works Proceedings as regards the source from which funds requisite for alterations and repairs made to the buildings used as a — can be provided, communicated to the District Engineer, Cuddapah, with instructions.	9th do. do.	29th Sept. 1875, Nos. 651, 652.
64	*Deputy Tahsildar's Cutcherry at Vizianagram.*—Proceedings, Judicial Department, sanctioning plan and estimate for erecting an additional room in the —, communicated to the District Engineer, Vizagapatam.	9th do. do.	....
65	*Buildings.*—Letter from the District Engineer, stating that joists alongside the wall is sometimes used and sometimes omitted, and giving his opinion on the subject regarding its use, &c. Lodged.	9th do. do.	....
66	*Terrace-Roofed Buildings, &c.*—Letter from the District Engineer, Presidency, affording opinion regarding Mr. Baldrey's proposition on the subject of erection of — Lodged.	9th do. do.	....
67	*Plans of the Godavery Delta.*—Proceedings, Board of Revenue, forwarding to Mr. Harris—. Lodged.	9th do. do.	....
68	*Correspondence.*—The Acting Assistant Inspector-General of Police furnished with five spare copies of — G. O., No. 2,956, dated 15th October 1875.	9th do. do.	....
69	*New Flag Staff erected by the Marine Department at Cochin.*—Report of the completion of the—. Lodged.	9th do. do.	....

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
70	*Agricultural School at Sydapett.*—Letter from the Superintending Engineer, Chingleput, reporting that the plan and estimate for the — is under preparation as suggested by the Superintendent of Farms.	10th Nov. 1875.	....
71	*Recovery of claims by Government against pensions.*—Proceedings, Financial Department, communicating the decision of the Government of India in the Military Department in respect to the —. Recorded.	10th do. do.	....
72	*Pensions.*—Proceedings, Military Department, communicating the decision of the Government of India that if a Soldier employed in the Public Works Department applied for his discharge from the Army before the 1st November 1874 the circumstance of his discharge being granted after that date will not bar his claim to count his departmental service, communicated to the officers of the Public Works Department.	10th do. do.	....
73	*Service Postage Labels.*—Proceedings, Financial Department, communicating to all departments Resolution of the Government of India deciding that charges for service postage labels shall be admitted in any contingent bill supported by a receipt from the Treasury Officer, communicated to all officers of the Public Works Department.	10th do. do.	12th Mar. 1873, No. 87. 16th Feb. 1874, No 104.
74	*Captain Heming, Deputy Commissioner of Police.*—Proceedings, Judicial Department, declining to sanction payment of rent for the quarters in the Fort required by — and expressing unwillingness on further consideration to allow — to live in the Fort, communicated to the District Engineer, Presidency.	10th do. do.	10th Sept. 1875, No. 1,995, J.D. 23rd Oct. 1875, No. 119.
75	*European or American Stores, Books, Newspapers or other Periodical Publications.*—Proceedings, Financial Department, communicating to all departments for guidance, rules to be observed in obtaining —, communicated to the District Engineer, Presidency.	10th do. do.	....
76	*Irrigation Works.*—Letter from the Government of India requesting to be supplied with information regarding the distribution of the grant for Irrigation Works with a description of the various works to which that grant is to be applied. Recorded.	10th do. do.	....

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
77	*Wooden House at Calicut for the Mysore Commission.*—Letter from the Officiating District Engineer, Malabar, forwarding the original correspondence from the Secretary to the Chief Commissioner of Mysore regarding—. Lodged.	10th Nov. 1875.	B
78	*Mr. Dejoux's Report on Cement Experiments.*—Circular from the Government of India forwarding for information extracts from —, communicated to all Superintending and District Engineers and to the Superintendent of Harbour Works.	10th do. do.	B
79	*Accident, Government House.*—Report of an accident to a cooly named Vambooly at Government House on the 6th November. Lodged.	11th do. do.	B
80	*Native Commissioned Officers.*—Letter from the Government of India forwarding copy of a communication from the Military Department sanctioning the provision of a chair and cot to each guard other than regimental commanded by —. Recorded.	11th do. do.	B
81	*Statement of Grant and Outlay for* 1874-75.—Letter from the Controller of Public Works Accounts promising to submit — on certain discrepancies being corrected. Recorded.	11th do. do.	A
82	*Lightning Conductors to the Wellington Barracks.*—Letter from the District Engineer, Nilgiris, informing that it will be hardly safe to allot any more sum in the current year for —. Lodged.	11th do. do.	B
83	*Statement of Objectionable Items (Provincial)* in the Accounts of Range Officers for the month of April 1875, forwarded by the Controller of Public Works Accounts. Lodged.	11th do. do.	A
84	*Silver Trowel for His Royal Highness the Prince of Wales.*—Letter from the Superintendent, Madras Harbour Works, annexing a copy of the woods proposed to be engraved on the —. Lodged.	11th do. do.	B
85	*Correspondence.*—The Consulting Engineer for Railways furnished with spare copies of G. O., No. 686, of 11th October 1875, Political Department, and G.O., No. 5,197, of 27th October 1875, Military Department.	11th do. do.	R

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
86	*Buildings of Historical interest.*—Proceedings, Revenue Department, communicating to the Board of Revenue with orders letter from the Government of India requesting to be furnished with a list of — under charge of Revenue officials. Recorded.	11th Nov. 1875.	....
87	*Schedule* of the Proceedings of the Consulting Engineer for Railways for fortnight ended 15th October 1875. Lodged.	11th do. do.	....
88	*Cemetery at Jaganaikpore, Cocanada.*—Proceedings, Ecclesiastical Department, sanctioning the plan and estimate for the construction of a room in the new —, the Public Works Department to provide funds next year, communicated to the District Engineer, Godavery.	12th do. do.	....
89	*Connection of the eastern slopes of the Koondahs with the new Coonoor Ghaut.*— Proceedings, Financial Department, referring to the President of the Local Fund Board, Nilgiris, for his consideration, the Chief Engineer's note on the subject of the proposed — with instructions to submit an estimate for the alternative line proposed by the Chief Engineer, communicated to the District Engineer, Nilgiris.	12th do. do.	....
90	*Mr. J. Hannan, Executive Engineer.*—Fourteen days' subsidiary leave granted to —. Notified.	12th do. do.	....
91	*Correspondence.*—Letter from the District Engineer, Nilgiris, re-submitting the plan called for in memorandum, No. 613, of the 29th ultimo. Lodged.	12th do. do.	....
92	*M. Bassaviah, late Local Fund Overseer.*—Petition of — requesting to direct the District Engineer, Godavery, to furnish him with certain correspondence promised by Colonel Fischer, R.E. Lodged.	23rd do. do.	....
93	*Cook-house of the Royal Horse Artillery, Bangalore.*—Proceedings, Military Department, approving of an estimate for putting up two Duff's cooking ranges in the —, communicated to the District Engineer, Bangalore, for submission of a detailed estimate with plan.	12th do. do.	....

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
94	*Correspondence.*—The Consulting Engineer for Railways furnished with copy of letter from the Directors of the South Indian Railway Company to their Agent at Negapatam, No. 57, dated 8th October 1875.	12th Nov. 1875.	....
95	*Statement (Provincial Local Funds, Madras Public Works)* of payments made in England on account of stores, &c., during the month of September 1875, communicated to the District Engineer and to the Controller of Public Works Accounts.	12th do. do.	....
96	*Statement (Public Works Department, Ordinary)* of payments made in England on account of stores, &c., during the month of September 1875, communicated to the District Engineer, Presidency, and to the Controller of Public Works Accounts.	12th do. do.	....
97	*Public Works Code.*—Letter from the Government of India forwarding two copies of the proofs of revised Chapters II. and III. of the —. Lodged.	12th do. do.	....
98	*Subsidiary Jail at Nowrungapore, Vizagapatam District.*— Proceedings, Judicial Department, sanctioning estimate for Rupees 50 for certain improvements to the —, the work to be carried out by the Special Assistant. Recorded.	12th do. do.	....
99	*Furniture.*—Docket from the Superintendent of Prisons informing that twelve writing tables are ready for delivery. Lodged.	12th do. do.	....
100	*Do.*—Do. do. six arm chairs do. do. ... ... Lodged.	12th do. do.	....
101	*Recovery of certain amounts due by Drs. Stanbrough and Wilson.*—Proceedings, Public Department, issuing instructions to the Surgeon-General for the —, communicated to the District Engineer, Presidency.	13th do. do.	27th Oct. 1875, Nos. 374, 375.
102	*Accounts.* — Proceedings, Financial Department, communicating to all departments memorandum of the Government of India requiring the Accountant-General to submit through the Local Government a yearly statement of the income, expenditure, and balance of every local or other independent fund upon his books, communicated to the Controller of Public Works Accounts.	13th do. do.	....

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
103	*Light-houses.*—Proceedings, Marine Department, communicating to the Master Attendant letter of the Government of India inquiring which of the two first-class lights indented for from England for Cape Comorin and Muttum should be transferred to the Kurrachee Harbour, and how the light said to have been exhibited since 10th September last on Cadiapatam Point has been obtained. Recorded.	13th Nov. 1875.	9th Sept. 1873, Nos. 214, 215. B
104	*Cost of repairing the rear apron of the Coleroon Bridge.* — Proceedings, Financial Department, sanctioning proposed contribution of Rupees 550 to be given to the Negapatam Circle by the Virdachellum Local Fund Board on account of the —, communicated to the District Engineer, South Arcot.	13th do. do.	.... B
105	*New channel cut by Ryots of Chinna Divalapuram in Kurnool from Maddulair River to their tank without permission.*—Proceedings, Revenue Department, communicating to the Public Works Department, Proceedings of the Board of Revenue on the Collector's report relating to the — and directing that no further demand be made upon the ryots in connection with this matter, communicated to the officers concerned with reference to G.O., 22nd February 1875, No. 510.	13th do. do.	10th Mar. 1874, Nos. 231, 232. 22nd Feb. 1875, Nos. 543, 544. B
106	*Accident.*—Report of an accident to a cooly at the Royapettah Palace Works. Lodged.	13th do. do.	.... B
107	*Budget Estimate of the Cuddalore Municipality.* —Proceedings, Financial Department, sanctioning the revised — for 1875-76, communicated to the District Engineer, South Arcot.	13th do. do.	.... B
108	*Transfers.* — Proceedings, Military Department, communicating the decision of the Government of India that Military Officers in civil employ are liable to be recalled to military duty whenever required.	13th do. do.	29th Sept. 1875, Nos. 624, 625. B
109	*Overseer Munoosawmy Moodelly.*—Letter from the Officiating Superintending Engineer reporting on the qualifications of —. Lodged.	13th do. do.	.... [illegible]

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
110	*Schedule* of the Proceedings of the Consulting Engineer for Railways for fortnight ending 31st October 1875. Lodged.	13th Nov. 1875.	........R
111	*Correspondence.*—The Government of India furnished with twenty-five spare copies of G.O., No. 2,991, dated 20th October 1874.	13th do. do.	........B
112	*Belts of Peons attached to the several Departments.*—Proceedings, Board of Revenue, intimating that certain samples of cloth have been selected for — ; that the claret colored cloth required for Ecclesiastical Department can be purchased in the local market, and that the samples of webbing will be forwarded when received. Lodged.	13th do. do.	........B
113	*Department Public Works.* — Return of public servants suspended or dismissed from employment during the half-year ended 30th September 1875. Lodged.	13th do. do.	........B
114	*Accounts, Stores.*—Proceedings, Financial Department, communicating for information Resolution of the Government of India directing certain arrangements to be made for the audit in the Civil Department of valuable ordnance and other stores and moveable property in the custody of Civil Officers. Recorded.	15th do. do.	........A
115	*Civil Budget Estimate.*—Proceedings, Financial Department, requesting the Accountant-General to explain the omissions, short provision, and overcharges in the — pointed out by the Public Works Department. Lodged.	15th do. do.	........A
116	*Seconding of Officers of Royal Engineers.*—Proceedings, Military Department, communicating correspondence from the Government of India forwarding copy of military letter from the Home Government regarding the —. Recorded.	15th do. do.	C
117	*Correspondence.* — Letter from the Officiating District Engineer, Tinnevelly, informing that the originals of certain Government Orders have not reached him. Lodged.	15th do. do.	........B

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
118	*His Royal Highness the Prince of Wales.*—Proceedings, Military Department, sanctioning an increase to the Detail of the Body Guard which is to accompany — to the Nilgiris. Recorded.	15th Nov. 1875.	....
119	*Mr. C. Norfor.*—Five days' privilege leave granted to —. Notified.	15th do. do.	....
120	*Taluq Cutcherries.* — Letter from the District Engineer, North Arcot, informing that on receipt of reply from the Collector, the substance will be reported regarding the subject of additional light and ventilation to the —. Recorded.	16th do. do.	....
121	*Standard design for a 1st-class Taluq Cutcherry.*—Letter from the Officiating Consulting Architect to Government forwarding the — showing additional light and ventilation. Lodged.	16th do. do.	....
122	*Taluq Cutcherries.*—Letter from the Superintending Engineer, Bellary, informing that no complaints have been made with regard to more ventilation in the Sheristadar's or Cashier's rooms of the Cutcherries built. Lodged.	16th do. do.	15th Feb. 1875, Nos. 348, 349. 6th May 1874, Nos. 138, 139. 13th May 1874, Nos. 304, 305.
123	*Do.*—Letter from the District Engineer, Cuddapah, informing that no — have as yet been completed in his district after the standard plan of 1871 to 1874. Lodged.	16th do. do.	....
124	*Major J. Vertue.*—Fortnight's subsidiary leave granted to —. Notified.	16th do. do.	....
125	*Transfer of Fishery Rents to Local Funds.*—Proceedings, Financial Department communicating to the Revenue Department the letter of the Chief Engineer anent — . Recorded.	16th do. do.	....
126	*Building lately occupied as a Collector's Office at Vizagapatam.*—Passing orders on letter from Badursha Nancharumma, Vizagapatam, intimating that she will dispose the — at a fair price.	16th do. do.	....

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
127	*Stationery.*—Passing orders on the Resolution of the Government of India relating to a better control over expenditure of stationery stores. Lodged.	16th Nov. 1875.	B......
128	*His Royal Highness the Prince of Wales.*—The Acting Special Executive Engineer informed that — will not travel by the Seegur Ghaut.	16th do. do.	B........
129	*Correspondence*.—Government of India informed that reply to No. 296 A.G.R. was despatched on the 13th instant.	16th do. do.	B......
130	*Mr. Supervisor J. Donaghue.*—Fourteen days' privilege leave granted to —. Notified.	16th do. do.	......
131	*Ancient Monuments.*—Proceedings, Public Department, passing orders with reference to certain suggestions of the Editor of the Indian Antiquary regarding the ancient inscription on the stone found by Mr. Vanstavern, and also the gold coin mentioned by that gentleman, communicated to all District Engineers.	16th do. do.	.... B
132	*Correspondence*.—The Consulting Engineer for Railways furnished with copies of the Traffic Return of the Great Indian Peninsula Railway Company for the week ending 16th October 1875, and Traffic Return of the Bombay, Baroda, and Central India Railway Company for the week ending 23rd October 1875.	17th do. do.	....
133	*Mr. J. O'Shaughnessy, Executive Engineer.*—Letter from the Superintending Engineer, Tanjore, informing that — was relieved on the 8th instant, and that Mr Baker has been placed in charge of No. 2 Range as a temporary arrangement. Lodged.	17th do. do.	....
134	*Barracks.*—Passing orders on statement showing the condition of five ranges of the European temporary Barracks at Trichinopoly for the half-year ending 30th September 1875.	17th do. do. B	5th Dec. 1874, No. 54, Mis. 24th Sep 1863, Nos. 546—554.
135	*Cemeteries at Yercaud and Oossoor.*—Proceedings, Ecclesiastical Department, passing orders with reference to the maintenance of the Protestant and Roman Catholic —, communicated to the District Engineer, Salem.	17th do. do.	.... B

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
136	*His Royal Highness the Prince of Wales.*—Proceedings, Military Department, approving arrangements proposed by His Excellency the Commander-in-Chief for providing guards of honor of European troops for — at Madras and Tuticorin, communicated to the Consulting Engineer for Railways.	17th Nov. 1875.	....
137	*Cattle trespass—Railway.*—Letter from the Consulting Engineer submitting letter from the Magistrate, Malabar, upon the subject of the light penalty inflicted in certain cases of —. Lodged.	17th do. do.	....
138	*Correspondence.*—The Consulting Engineer for Railways furnished with copies of letter from the Directors of the Madras Railway Company to their Agent at Madras, No. 559, dated 8th October 1875. Do. do. South Indian Railway Company to their Agent at Negapatam, No. 58, dated 15th October 1875.	17th do. do.	....
139	*Hydraulic Manual and Statistics.*—Copies of — distributed to certain officers of the Public Works and Revenue Departments, and to the Engineering College.	18th do. do.	....
140	*His Royal Highness the Prince of Wales.*—Programme of detailed arrangements for the landing of — at Beypore. Lodged.	18th do. do.	....
141	*Repair of Roads in Vellore.*—Proceedings, Financial Department, sanctioning arrangement for the division of the repair of the road from Vellore to its Railway station between Vellore Municipality and the Local Fund Boards of the district in certain proportion, communicated to the District Engineer, North Arcot.	19th do. do.	....
142	*Accounts.*—Statement of Objectionable Items in the Accounts of Range Officers for the month of May 1875 under Imperial Roads and Buildings. Lodged.	19th do. do.	....
143	*Do.*—Do. do. under Provincial ... ... Lodged.	19th do. do.	....

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
144	*Capital and Revenue Accounts of the Irrigation Works.*—Passing orders on letter from the Controller of Public Works Accounts regarding the preparation of the —.	20th Nov. 1875.	......A......
145	*Accident—Railway.*—Report of — to three coolies at Dindigul Station on the South Indian Railway on the 5th September 1875. Recorded.	20th do. do.	......R......
146	*Do.*—Report of an accident to Porter Musthan at Pothanoor Station, Madras Railway, on the 5th October 1875.	20th do. do.	......R......
147	*Telegraph Messages.*—Proceedings, Public Department, furnishing to all Departments of the Secretariat copy of the Revised Rules regarding the treatment of Confidential and Precedence Messages. Lodged.	20th do. do.	......B......
148	*Local Fund Tolls.*—Proceedings, Financial Department, requesting the Board of Revenue to call upon all Presidents of Local Fund Boards to report whether relief may not be given to the General Fund by tolling all roads to which maintenance grants are now assigned, each report being accompanied by an estimate of income and expenditure from tolls to be so raised. Recorded.	20th do. do.	.... B
149	*Uncovenanted Civil Service Gazette.*—Proceedings, Public Department, admitting the — to the privileges of the Editor's Table.	20th do. do.	......B......
150	*Colonel H. N. D. Prendergast.*—Proceedings, Military Department, communicating extract from military letter from the Home Government reporting the dates on which — joined at Chatham for general study, and quitted the School of Military Engineering. Lodged.	20th do. do.	......R......
151	*Correspondence.*—The Acting Assistant Inspector-General of Police furnished with a spare copy of G. O., No. 55, dated 9th October 1875, Public Works Department.	20th do. do.	.... B

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
152	*Correspondence.*—The President of the Municipal Commission furnished with a list of persons employed in the Public Works Office on the receipt of Rupees 75 and upwards.	20th Nov. 1875.	....
153	*Demand for Timber by the Public Works Department.*—Proceedings, Financial Department, regarding the decrease in the —. Recorded.	20th do. do.	....
154	*Dress of Military Officers in Civil employ.*—Letter from the Controller of Public Works Accounts offering remarks relative to the —. Lodged.	20th do. do.	....
155	*Statement of Objectionable Items* in the Accounts of Range Officers for the month of April 1875, under Imperial Irrigation. Lodged.	20th do. do.	....
156	*Dress.*—Proceedings, Military Department, defining the several Military and Civil Departments of the Army, and issuing instructions as to the dress to be worn on public occasions by Military Officers in purely Civil employ and other officers employed in the Army Departments, communicated to the officers of the Public Works Department.	20th do. do.	....
157	*Correspondence.*—The Government of India requested to furnish six copies (interleaved) of the Government of India Code of Regulations for the Public Works Department.	20th do. do.	....
158	*Do.*—Letter to the Government of India requesting to be furnished with three copies of Chapter I. of the Revised Government of India Code as well as of any other, and also an additional copy of Chapters II. and III.	20th do. do.	....
159	*Do.*—The Consulting Engineer for Railways furnished with copies of Traffic Returns of the Great Indian Peninsula Railway Company for the week ending 23rd October 1875.	20th do. do.	....
160	*Correspondence, Railway.*—Schedule of estimates sanctioned during the month of October last, forwarded to the Government of India.	22nd do. do.	22nd Aug. 1874, Nos. 566, 567. 27th April 1875, Nos. 640, 641.

No.	Subject and Order.	Date of Order.	Dates of previous Order.
161	*Floating Plant, Cocanada Harbour.*—Letter from the District Engineer, Godavery, forwarding copies of three receipts given by the Master Attendant, Cocanada, for stores, &c., taken by him, belonging to Harbour Dredge No. 2, Sea Punts, and Cocanada South Groyne. Recorded.	22nd Nov. 1875.	21st Sept. 1875, Nos. 500—502. 14th July 1875, No. 104.
162	*Villages under the Perryaur Project in Madura.*—Proceedings, Revenue Department, approving the arrangements proposed by the Acting Director of Revenue Settlement for carrying on the work in connection with the —, communicated to the District Engineer, Madura.	22nd do. do.	6th Aug. 1875, Nos. 119, 120.
163	*Cavalry Stables at Bangalore.*—Passing orders on Proceedings, Military Department, approving the re-construction of the —.	22nd do. do.	10th June 1874, No. 87. 8th May 1867, Nos. 208, 209. 19th Jan. 1867, Nos. 364, 365. 19th Nov. 1866, Nos. 390, 391. 15th Nov. 1866, Nos. 318, 319. 13th Dec. 1864, Nos. 235, 236.
164	*Village and Field Channels in Tanjore, Trichinopoly, Madura, and Coimbatore.*—Proceedings, Revenue Department, concurring with the Board of Revenue that there is no reason for any general change in the existing arrangements for the distribution of water from —, communicated to the District Engineers, Tanjore, Madura, Trichinopoly, and Coimbatore.	22nd do. do.	31st May 1875, No. 295, Revenue Dept. 31st July 1875, Nos. 340, 341.
165	*Annual Increments.* — Proceedings, Financial Department, communicating to the Secretariat Departments ruling of the Government of India that in future, whenever progressive pay is assigned to an office, the period during which the increment takes effect shall not, save under special circumstances, be less than five years, the increments being equal and annual. Recorded.	22nd do. do.	....
166	*Travelling Allowances.* — Proceedings, Financial Department, communicating resolution of the Government of India explaining the objection to the grant of travelling allowance to an officer who does not go further than 5 miles from his head-quarters. Lodged.	22nd do. do.	....

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
167	*Captain Hammick, 43rd Foot.*—Proceedings, Military Department, communicating correspondence from the Government of India sanctioning the the temporary employment of — as Chief Garrison Instructor at Bangalore, and requesting information as to why Major Hannen, who was ordered to officiate in that appointment, was not permitted to proceed by rail to take up the duties. Lodged.	22nd Nov. 1875.	....
168	*Arrangement for the comfort and convenience of passengers on Railways.*—Proceedings, Financial Department, communicating to the Board of Revenue, Public Works G. O. No. 3,115 of 3rd November 1875, regarding —.	22nd do. do.	....
169	*Lighthouse at Vakalapudi, Godavery District.*—Proceedings, Marine Department, allotting the sum of Rupees 6,000 for 1876-77, for the —, communicated to the Superintending Engineer, Godavery.	23rd do. do.	....
170	*Platform, &c., for the 8-inch proof gun at St. Thomas' Mount.*—Proceedings, Military Department, communicating memorandum from Public Works Department intimating that funds have been allotted for the —. Recorded.	23rd do. do.	....
171	*Accident—Railway.*—Report of an — to a man at 15th mile, District 1, South Indian Railway, on 16th August 1875. Recorded.	23rd do. do.	....
172	*Mr. J. H. Dennison.*—Passing orders on letter from the Superintendent, Madras Harbour Works, reporting that — was employed on the Harbour Works from the 1st September, but drew pay from 5th October.	23rd do. do.	....
173	*Do.*—The Resident at Hyderabad informed that — began to draw pay in the capacity of Storekeeper on the Madras Harbour Works from the 5th October, being the day after his sick leave expired.	23rd do. do.	....

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
174	*Accounts.*—Appropriation Return (Buildings and Roads Branch) for September 1875, communicated to the Accountant-General, Public Works Accounts.	23rd Nov. 1875.	.... A
175	*Furlough.*—Proceedings, Military Department, communicating the decision of the Government of India that the ruling laid down in Military Department, docket No. 641, of 10th December 1874, provides solely for the application to officers in civil employ of the rule in force with civilians which prohibits their returning to duty before the expiration of their furlough save under special sanction, communicated to the officers of the Public Works Department.	24th do. do.	.... B
176	*Sriharikota School-house.*—Proceedings, Educational Department, communicating letter from the Director of Public Instruction intimating that the transfer of Rupees 860, from the grant of Rupees 3,000, for the Anglo-Vernacular School at Ongole to the — has been suspended by G.O., Educational Department, No. 358, of 29th October 1875. Lodged.	24th do. do.	7th Oct. 1875, No. 40. 5th Nov. 1875, No. 41. B
177	*Burial-grounds at Cannanore.*—Proceedings, Financial Department, ordering the Government of India to be addressed on the subject of a sum of Rupees 636-2-5, being a portion of the compensation for land acquired in 1863 for —. Lodged.	24th do. do.	.... B
178	*Deputy Tahsildar's Cutcherry at Yercaud, Shevaroy Hills.*—Passing orders on Proceedings, Judicial Department, sanctioning the plan and estimate for constructing a — and cancelling the sanction given for building a lock-up.	25th do. do.	.... B
179	*Honorifics.*—Passing orders on Proceedings, Public Department, calling for certain information in connection with forms of address selected by Government equivalent to "Mr." and "Esquire" to be used in the case of Native functionaries.	25th do. do.	.... B
180	*Irrigation Company's Canal.*—Proceedings, Revenue Department, communicating to the Public Works Department, Proceedings of the Board of Revenue submitting the report of the Collector of Kurnool on the dilatoriness of curnams in receiving applications for water from — communicated to the Chief Engineer for Irrigation.	25th do. do.	21st Oct. 1874, Nos. 466, 467. 8th May 1875, Nos. 219, 220.

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
181	*Lands under Irrigation Company's Canal in Kurnool District.*—Proceedings, Revenue Department, communicating to the Public Works Department, with observations, Proceedings of the Board of Revenue with reference to the proposal of the ryots of Kotapad village to pay a consolidated rate of Rupees 6 per acre on — for the entire season. Recorded.	25th Nov. 1875.	4th Aug. 1874, No. 34. 29th June 1875, No. 315. 25th May 1875, Nos. 433, 434.
182	*Correspondence.*—The Consulting Engineer for Railways furnished with the copies of letter from the Directors of the South India Railway to their Agent at Negapatam, No. 59, dated 22nd October 1875. Letter from the Directors of the Madras Railway to their Agent at Madras, No. 560, dated 22nd October 1875, statement and classification of issues to the Madras Railway Company during the month of September 1875.	25th do. do.	....
183	*Captain Graham's travelling expenses to and from Barwah.*—Passing orders on Proceedings, Marine Department, expressing opinion that — should be defrayed by the Public Works Department according to the established scale alluded to in G.O., 2nd April 1875, No. 127.	26th do. do.	....
184	*Dead-houses.*—Proceedings, Judicial Department, cancelling the sanction accorded in G. O., 23rd July 1875, No. 1,629, for a mud-wall round the dead-house of the Munjacoopum Dispensary, communicated to the District Engineer, South Arcot.	26th do. do.	14th Oct. 1874, No. 77, Mis. 11th May 1875, No. 73, Mis. 5th Aug. 1874, No. 26, Mis.
185	*Place-of-worship at the Remount Depôt, Oossoor.* — Proceedings, Ecclesiastical Department, passing orders with reference to the furniture required for the —, communicated to the District Engineer, Salem.	26th do. do.	25th Sept. 1871, No. 213, Mis. 4th June 1872, Nos. 38, 39, 18th May 1874, No. 84, Mis. 20th Jan. 1875, No. 154, Mis. 8th Feb. 1875, No. 76, Mis. 27th April 1875, No. 293, Mis.
186	*Roads in the Madura District.*—Proceedings, Financial Department, recording letter from the District Engineer, Madura, addressed to the President, Local Fund Board, stating his views on the state of the —. Lodged.	27th do. do.	....

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
187	*Captain Brockman, R.E.*—Report of the return of — to duty from the privilege leave on the morning of the 9th November, and the remaining portion of his leave cancelled. Notified.	27th Nov. 1875.	....
188	*Service Postage Labels.*—Passing orders on Circular from the Government of India forwarding resolution on the mode of charging the cost of service postage labels in contingent bills.	27th do. do.	....
189	*Mr. Supervisor R. Ward, Cuddapah District.*—Four months' sick leave granted to —. Notified.	27th do do.	....
190	*Compensation for land required for the Rifle Range at Palaveram.* — Proceedings, Military Department, requesting the Controller of Military Accounts to provide funds for the payment of —, communicated to the Superintending Engineer, Chingleput.	27th do. do.	13th Sept. 1875, Nos. 304, 305. 10th Sept. 1875, No. 74 A. 29th Oct. 1874, Nos. 633, 634.
191	*Sub-Engineer C. Sambiah Chetty.*—One month's privilege leave granted to —. Notified.	27th do. do.	....
192	*Prospects of bridges over the Vansadhara river at Madapam (Byri), and over the Rooshkulie or Ganjam river being tolled remuneratively.*—Proceedings, Financial Department, intimating that paragraph 2 of Government Order, Public Works Department, No. 2,943, of 15th October 1875, regarding the — will be referred to the President, Local Fund Board, Ganjam, communicated to the Chief Engineer for Irrigation.	27th do. do.	....
193	*Capabilities of the Madras and South Indian Railways for the carriage of guns and Artillery Stores.*—Passing orders on Proceedings, Military Department, communicating the observations of the Commander-in-Chief on the —.	27th do. do.	13th Sept. 1875, Nos. 295—297. 10th Mar. 1870, Nos. 228, 229.
194	Copy of the above forwarded to the Government of India.	27th do. do.	....
195	*Police Hospital at Nellore.*— Letter from the Officiating Superintending Engineer, Nellore, soliciting an allotment of Rupees 4,468 to cover the past and proposed expenditure for the construction of the — during the current official year. Lodged.	27th do. do.	....

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
196	*Burial-grounds at Nellore.*—Proceedings, Ecclesiastical Department, drawing attention to paragraph 2 of the report of the Acting Sub-Collector of Nellore on the burial-grounds at that place, communicated to the District Engineer.	27th Nov. 1875.	Proceedings, Eccl. Dept., 9th May 1848, No. 140. 20th Dec. 1856, No. 2,375. 9th Jan. 1857, No. 11. 21st Jan. 1857, No. 143, P.W.D.
197	*Plan of Steamer "Prince".*—Passing orders on letter from the District Engineer, Godavery, informing of the despatch of the — on the 29th October 1875.	27th do. do.	....
198	*Compensation for land required to extend the Rifle Range at Berhampore.*—Proceedings, Military Department, authorizing the amount of — to be met from general savings. Recorded.	27th do. do.	....
199	*Mr. Schiffmayer of the Government Farm at Sydapett.*—Proceedings, Revenue Department, communicating to the Board of Revenue letter from the Government of India regarding the grant of sick leave to —, communicated to the Controller of Public Works Accounts.	29th do. do.	....
200	*His Royal Highness the Prince of Wales' visit.*—Proceedings, Financial Department, sanctioning the erection of a stand to accommodate 1,500 persons. Lodged.	29th do. do.	....
201	*Estimate of the cost for supplying pipes, &c., to the Monegar Choultry.*—Proceedings, Public Department, requesting the District Engineer, Presidency, to furnish an —. Lodged.	29th do. do.	....
202	*Captain R. F. Morris, R.E.*—Report of — having delivered over charge of the Trichinopoly District to Major James Vertue on the forenoon of 23rd November. Lodged.	29th do. do.	....
203	*Major James Vertue, R.E.*—Report of — having assumed charge of the Trichinopoly District from Captain R. F. Morris, R.E., on the forenoon of the 23rd November. Lodged.	29th do. do.	....
204	*Accounts.*—Statement of Objectionable Items in the Accounts of the Madras Presidency for the month of March 1875 requiring the orders of the Local Government. Lodged.	29th do. do.	....

No.	Subject and Order.	Date of Order.	Dates of previous Orders.
205	*Correspondence.*—The District Engineer, Kurnool, furnished with a copy of G.O., No. 796, of the 20th March 1875.	29th Nov. 1875.	....
206	*Do.*—The Consulting Engineer for Railways furnished with the Traffic Return of the Great Indian Peninsula Railway Company for the week ending 30th Oct. 1875, do. do. Bombay, Baroda, and Central India Railway Company for do. do.	29th do. do.	....
207	*Mr. G. Brown.*—Report of the arrival of — and assumption of the duties of Assistant Examiner of Railway Accounts, ordered to be forward ed to the Government of India.	29th do. do.	....
208	*Do. do.*—Do. do. do. forwarded to the Government of India.	29th do. do.	....
209	*M. Thurmeliya, Clerk.*—Passing orders on letter from Assistant Secretary to the Chief Commissioner, Central Provinces, stating the circumstances under which — may be received back in his office.	29th do. do.	....
210	*Driver Holmes and Guard Walker of the Madras Railway.*—Docket from the Consulting Engineer for Railways submitting letter from the Agent, Madras Railway Company, regarding the Guard and Driver of the 2 P.M. mail train from Mettahpolliem to Pothanore on the 25th October who were found intoxicated and unable to proceed with the train. Recorded.	29th do. do.	....
211	*Public Works.*—Distribution list of the grant for — for 1876-77, forwarded by the Government of India. Recorded.	30th do. do.	....
212	*Lighthouses in the Madras Presidency.*— The Government of India furnished with the information required regarding —.	30th do. do.	....
213	*Thallasunkoo Bridge, Mangalore.*—Proceedings, Financial Department, requesting the Public Works Department to provide a sum of Rupees 3,050 in its Budget for 1876-77 for the —. Recorded.	30th do. do.	1st Feb. 1875, No. 5. 29th July 1875, No. 290. 9th Oct. 1874, No. 53.
214	*Return of Railway Employés.*—Letter from the Government of India calling for the submission of the — for the year ending 30th September 1875, communicated to the Consulting Engineer for Railways.	30th do. do.	13th Sept. 1875, Nos. 334, 335.

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

For the Month of November 1875.

No. 1. Read the following letter from Lieut.-Colonel J. J. McLEOD INNES, R.E., Deputy Secretary to the Government of India, Public Works Department, (Account—General,) to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department, (Railway Branch,) dated Simla, 21st October 1875, No. 654 A.—G. :—

IT has attracted attention that the cost of imported iron is now higher than the price of country iron,—in some places by 30 per cent.,—and the Government of India are anxious to know what steps are taken by the Public Works Department to utilize and give preference to local resources in this respect.

2. I am therefore directed to request that such information as is available may be given on this point, and to inquire what quantities (approximate) of country iron and of imported iron respectively have been used during the last three official years in Mådras, and the cost at which each was procurable in each of these years and is now procurable.

No. 2. ORDER THEREON, 1st November 1875, No. 3,086.

ACCOUNT, No. 1.

COMMUNICATED to the General Superintendent of Public Works Stores and Workshops, through the District Engineer, Presidency, and to the District Engineers, Godavery and Kistna, who will supply such information as is available.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 3. Read the following despatch from the Most Honorable the Secretary of State for India :—

Railway.
No. 6.

INDIA OFFICE, LONDON,
23rd September 1875.

SIR,—Upon receipt of your Excellency's despatch of the 16th June last, No. 5, forwarding the Revenue Account of the South Indian Railway Company for the second-half of the year 1874, I caused a letter to be addressed to the Board, pointing out certain unsatisfactory features connected with the traffic operations which appeared to me to call for explanation. A copy of the letter* in question is sent herewith for your information, together with a copy of one† which has been received in reply.

* Dated 17th August 1875.

† Dated 23rd August, No. 106.

2. From the latter it will be seen that the Board are about to direct that further inquiries be made on the subject, and I request that it may also receive your consideration; and that, if in your opinion the number of trains run is unduly great, or the train loads unduly small, steps may be at once taken for reducing the number of trains or otherwise effecting proper economy in working the traffic.

I have, &c.,
SALISBURY.

His Excellency the Honorable
the Governor in Council, Fort St. George.

From Sir LOUIS MALLET, to H. W. NOTMAN, Esq., Secretary, South Indian Railway Company, dated India Office, 17th August 1875.

I AM directed by the Marquis of Salisbury to draw the attention of the Directors of the South Indian Railway Company to the Revenue Account for the second-half of the year 1874, the results exhibited in which seem to His Lordship to require some remark.

2. The total cost of working per train mile, irrespective of the useful effect produced, is small, but the train loads appear to be very inadequate. Thus the ton mileage for the half-year being 3,367,000, and the mixed train mileage about 163,000, it would follow that the average train load of goods is about 21 tons, besides the passengers (the mileage of whom is about 25,400,000), which may amount to about 150. Making every allowance for the inequality of up and down traffic, such loads must be regarded as extremely low; and it seems impossible to avoid the conclusion that the number of trains run, which averages 2½ over the whole line open, is in excess of the requirements of the traffic, and that it should be reduced.

3. The Secretary of State, before making any representation on the subject to the Government in India, will be glad to receive any explanations on the above points that the Board may be able to afford.

From H. W. NOTMAN, Esq., Secretary, South Indian Railway Company, to the Under Secretary of State for India, dated 2 Leadenhall Street, 23rd August 1875, No. 116.

I BEG to acknowledge receipt of your letter of 17th instant, in which the attention of the Directors is drawn to the number of trains run over the line and their average loads.

2. Taking into consideration the considerable difference between the up and down traffic, which for the year 1874 was 41 and 59 per cent., respectively, and having regard also to the average number of passengers carried in the mixed trains run, and to the necessity for providing ample accommodation for any excess of that average, it is believed that it will be found that the number

of trains are not greater than the requirements of the traffic demand. The Directors will, however, make further inquiry into the matter, the result of which they will have the honor of communicating.

No. 4. ORDER THEREON, 1st November 1875, No. 3,087.

RAILWAY, No. 1.

COMMUNICATED to the Consulting Engineer, who will place himself in communication with the Agent and Manager of the South Indian Railway Company on this subject, and report the result as early as practicable.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 5. Read the following Proceedings of the Government of India in the Public Works Department, (Railway,) dated Simla, 18th October 1875, Nos. 2,577-84 R. :—

Experiments in embarking and disembarking troops, &c., on and from Railway Trains.

Read—

No. 305 S, dated 14th September 1875, from the Government of India, Military Department.

No. 4,804, dated 30th July 1875, and annexure from the Quartermaster-General of the Army.

OBSERVATIONS.—Some valuable experiments in embarking and disembarking troops, horses, and guns on to and from Railway trains were made during the cold season of 1874-75 at Bareilly, Meean Meer, Allahabad and Agra, under the orders of His Excellency the Commander-in-Chief.

2. The result of the exercises then carried out, aided by the cordial co-operation of the Railway officials was satisfactory, and Lord Napier of Magdala recommends that advantage be taken of the gathering of a large force at Delhi during the ensuing cold season to prosecute the experiments on an extended scale, on both the broad and narrow gauge lines of Railway.

3. With this view the Honorable the President in Council is pleased to sanction the assembling of a Committee composed of Military and Railway Officers presided over by a General Officer. The Consulting Engineers to Government at Calcutta, Lahore and Lucknow will be Members of the Committee, and, with the permission of the Agencies of the East Indian, Scinde, Punjab and Delhi, Oudh and Rohilkhund Railway Companies, they will be requested to obtain the services of Mr. R. Pearce, Mr. Bocquet, and Mr. Cooke as Members of the Committee for such time as these gentlemen can without inconvenience be spared from their own duties. The Director of State Railways will be a Member of the Committee, and he will select two officers under his orders, one from the broad and the other from the narrow gauge system of State Railways, to be on the Committee.

4. His Excellency the Commander-in-Chief will be pleased to nominate the President of the Committee and the Military Members, who should be selected from each branch of the service.

5. In order that a record may be taken of the Proceedings, an Officer of the Royal Engineers will be appointed as Secretary to the Committee, and a full and complete report submitted for the information of the Government of India, illustrated by plans and sections of the patterns of rolling stock recommended by the Committee to be generally adopted on the broad and narrow gauge railways, suitable as far as possible, both for military and commercial purposes. By broad and narrow gauges are to be understood the standard 5 feet 6 inches gauge and the metre gauge 3 feet 3⅜ inches.

6. The Governments of Madras and Bombay are invited to send representative officers fully acquainted with carriage and wagon building from each of the Guaranteed Railways in those Presidencies to attend the Committee as Members.

ORDER.—Ordered that this Resolution be forwarded to the Military Department and to the Quartermaster-General of the Army for information and the issue of the necessary orders.

2. Also to the Governments of Madras and Bombay, to the Director of State Railways, and to the Consulting Engineers for Guaranteed Railways at Calcutta, Lahore, and Lucknow for information and guidance.

(Signed) C. H. DICKENS, Colonel, R.A.,
Secretary to the Govt. of India.

Nos. 6 & 7. ORDER THEREON, 1st November 1875, No. 3,088.

RAILWAY, No. 2.

COMMUNICATED to the Consulting Engineer for Railways and to the Military Department. The Consulting Engineer will invite the Agents of the Madras and South Indian Railways to nominate an officer of each Company possessing the required qualifications as regards carriage and wagon building to join the Committee.

2. The Government of India will be requisted to avail themselves also of the services of Major C. J. Smith, R.E., Deputy Consulting Engineer for Railways, as a Member of the Committee, that Officer having been appointed one of the deputation of Military Officers to represent the Madras Army at the Delhi Camp.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 8. (DOCKET No. 3,089, dated 1st November 1875.)

COPY of the above forwarded to the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following letters :—

No. 9. From JAMES MAY, Esq., Superintendent of the Madras Harbour Works, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 14th October 1875, No. 21 G.

I HAVE the honor to acknowledge the receipt of the manuscript G. O., No. 2,855, dated 5th instant, containing instructions as to the arrangements for the ceremony of the Memorial Stone proposed to be laid on 7th December next by His Royal Highness the Prince of Wales. I have also received the tracing referred to in this order, showing the spot decided on for the stone, in front of the centre of the High Court buildings. These instructions will be attended to.

2. This morning I met the President of the Municipal Commission at the fountain on the beach, between the monument and the sea, and he undertakes to carry out at once that part of the order which refers to the removal of the fountain.

3. The beach road and tramway opposite the centre of the Cornwallis Monument are 3 feet 9 inches lower than the top of the Pier opposite the Custom-house. This will involve the necessity of His Royal Highness having to walk up an incline of 1 in 5 for a distance of 19 feet, from the easternmost tramway metal to the top of the embankment on which the Memorial Stone is to be placed. If this short incline is considered objectionable, eight or nine low steps may be substituted.

4. The blocks of granite required for the Memorial Stone were received at Royapooram from Sholinghur yesterday afternoon, and as little time as possible will be lost in dressing them.

5. A triangle of timber for placing the stone will be borrowed from the Public Works Stores, and we have got from the Stores the crab, blocks, and tackle required.

6. A detailed survey of the beach, showing the row of buildings next the sea from Royapooram to the light-house, has been made, from which a plan of the proposed Harbour is nearly finished, to a scale of 120 feet to an inch, being the largest that can be laid down on a sheet of mounted drawing paper 54 inches in width. This plan will serve for the model of the finished Harbour required by His Excellency the Governor, and the model will be made of polished hard wood unless instructions are received to the contrary. The dimensions of this model will be 72 inches in length by 54 inches in breadth.

7. A model of a short length of one of the piers, required by His Excellency, showing the blocks resting on their base of laterite rubble, is being made to a scale of quarter of an inch to a foot. The blocks in this model will be Plaster of Paris, and the scale half that of four teak models which were sent to your address on 24th ultimo.

Trusting that these arrangements may be approved.

No. 10. From the same Officer, dated Madras, 23rd October 1875, No. 23 G.

REFERRING to what you said yesterday morning as to the level of the Prince's Memorial Stone, I have the honor to report that I have again examined the ground which is now being prepared to receive it. The level most suitable for the ground is 21 inches above the tramway and road, or 2 feet lower than the pier level formerly

proposed. This would reduce the inclination of the Prince's road up to the stone from 1 *in* 5 to 1 *in* 11.

2. Copies of a sketch and letter sent to General Raikes, at his request, on 19th instant, and copy of a letter sending the same sketch to the District Engineer, are enclosed.

From JAMES MAY, Esq., Superintendent of the Madras Harbour Works, to Brigadier-General T. RAIKES, dated Madras, 19th October 1875, No. 43 M.

REFERRING to a conversation at your house yesterday morning, I have the honor to inform you that I have been instructed by the Government to carry out the following arrangements in connection with the Memorial Stone for these works, which is proposed to be laid by His Royal Highness the Prince of Wales about 5 o'clock in the afternoon of Tuesday the 7th December next.

2. The position of the stone is fixed to be on the beach opposite the centres of the High Court buildings and Cenotaph, and 33 feet east of the easternmost metal of the tramway which leads from Royapooram to Triplicane. The exact position of the stone, with reference to the Cenotaph and the tramway, is marked by a *blue* tint on the accompanying plan.

3. The Prince's Memorial Stone consists of a piece of blue granite, weighing about 5 tons, and an inscription suitable for the occasion will be cut on one side of it. The stone will be suspended from a wooden triangle by Manilla rope tackling, ready to be lowered before the Prince's arrival. As soon as the Prince has applied the "bed" of mortar with his trowel, the operation of lowering will be performed in a minute or two by a crab.

4. The ground selected by the Government for this purpose is about 4 feet higher than the street opposite to it, and this involves the necessity of placing the Stone on the top of a low embankment, which will be approached by a short inclined plane from the tramway level. The top and slopes of the embankment may be covered with grass sods.

A space of about 40 yards square will be railed off, enclosing the stone and Lord Cornwallis' Monument, as shown by the letters A B C D on the plan.

Twelve rows of wooden benches will be erected in the position defined by E F G H in continuation, north and south, of Lord Cornwallis' Monument. These benches will contain about 600 spectators, and it is proposed to admit them by tickets.

There will be room for a good many more spectators in the front verandahs of the High Court buildings, the Custom-house, and the Pier Office.

At each end of the grass sodding there will be room for about thirty chairs, those at the south end being for the use of His Royal Highness, and those at the north end of His Excellency the Governor.

Carpeting, flags, and flower decorations will be applied at suitable places.

From JAMES MAY, Esq., Superintendent of the Madras Harbour Works to Captain ROSS THOMPSON, R.E., District Engineer, Presidency, dated Madras, 20th October 1875.

I BEG to enclose a tracing showing, in plan, to a large scale, the position fixed on for the Prince's Memorial Stone, *viz.*, on the North Beach, opposite the centres of the High Court buildings and Cenotaph, and 33 feet east of the easternmost metal of the tramway. The exact position of the stone is marked by *blue* tint on the tracing.

2. The Prince's stone consists of a piece of blue granite, weighing about 5 tons, and now being dressed at Royapooram terminus. Preparations are in hand for having everything connected with the stone ready before the Prince's arrival.

3. The level of the under bed of the Prince's Stone, proposed to be 45 inches higher than the tramway opposite to it, involves the necessity of placing the stone on the top of a low embankment,

coloured *green*, with a short inclined approach from the tramway level. The top and slopes of the little bank may be covered with grass sodding.

4. There appears to be room for 12 rows of wooden benches in the position shown by E F G H in continuation, north and south, of Lord Cornwallis' Monument. These you kindly promised to make.

5. There is room for about thirty chairs at the south end of the grass sodding for the use of His Royal Highness, and as many at the north end for His Excellency the Governor. I suppose the chairs may be got from Government House. The floors for the chairs, 25 feet by 14 feet, should be stepped up 10 or 12 inches higher than each other as they recede from the Stone. I presume you will also make the floors. I have some 240 yards of red carpeting.

6. I should also feel obliged if you could put up a temporary fencing round the stone, measuring about 160 yards in length, including two gates for the Prince and road and two gates for the tramway.

No. 11. ORDER THEREON, 1st November 1875, No. 3,090.

CIVIL WORKS, No. 1.

THE arrangements detailed in these papers are approved. The level at which the Memorial Stone shall be laid may be lowered as suggested.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 12. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 22nd October 1875, No. 576:—

I HAVE the honor to recommend, for the favorable consideration of Government, an application* from the Acting Agent of the South Indian Railway for sanction to the fixed and travelling allowances of the Deputy Chief Engineer on Construction being the same as those of the Chief Engineer.

* No. 899, dated 8th October 1875.

2. These rates of travelling and fixed allowance were drawn by Engineers holding the similar appointment on the Madras Railway, as sanctioned in the Order of Government, No. 170, dated 15th March 1865.

From D. LOGAN, Esq., Acting Agent, South Indian Railway, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Trichinopoly, 8th October 1875, No. 899.

IN continuation of my letter No. 846, of the 11th ultimo, and on the assumption that the appointment of Deputy Chief Engineer will be sanctioned, I have the honor to request that you will obtain the sanction of Government to the rates of fixed and travelling allowance for the post.

2. The Chief Engineer remarks, "I beg to recommend that they be fixed at the same rates as those for the Chief Engineer, *viz.*, fixed allowance Rupees 105 per mensem, and for travelling

any distance above 5 miles otherwise than by rail Rupees 5 per 10 miles in lieu of fixed allowance. When proceeding on duty, the Deputy Chief Engineer to travel by rail when practicable; the actual expenses so incurred, not exceeding fare for himself, two servants, luggage, tent, two horses, and carriage, to be allowed in addition to Rupees 5 per diem, instead of fixed allowance for such days as he is actually and necessarily travelling or halting on duty en-route."

No. 13. ORDER THEREON, 1st November 1875, No. 3,091.

RAILWAY, No. 3.

THE sanction of the Government of India to these allowances will be applied for.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 14. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Government of India, P.W.D., (Railway), dated 1st November 1875, No. 3,092.

RAILWAY, No. 3-A.

SIR,—Adverting to my letter, No. 2,808, dated 29th September 1875, requesting the confirmation of the Government of India to the appointment of a Deputy Chief Engineer on Construction in connection with the South Indian Railway, I am directed by His Excellency the Governor in Council to submit the accompanying proposals from the Acting Agent of the Company in respect to the rates of fixed and travelling allowances to be attached to the post, and to recommend them for sanction.

No. 15. Read the following letter from Captain L. CONWAY-GORDON, R.E., Controller of Public Works Accounts, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 22nd October 1875, No. 114 W. :—

WITH reference to G. O., Public Works Department, No. 2,658, dated 15th September 1875, I have the honor to state that having addressed the Accountant-General, Public Works Department, on the subject of debiting the entire cost of the Survey Establishments employed during 1874-75 on Irrigation Works in Madras to "Ordinary," I have this day been informed by telegram that the necessary corrections will be made in his office in the accounts of 1874-75, and requested to advise you accordingly.

2. I have further been instructed, if not too late, to arrange to have the figures in the Madras Annual Progress and Administration Reports altered accordingly; and if you will be so good as to have the proof-sheets of those Reports sent to me, the required corrections shall be made in the amounts connected with the expenditure in question.

No. 16. ORDER THEREON, 1st November 1875, No. 3,093.

IRRIGATION, No. 1.
Account.

APPROVED accordingly. The Chief Engineer for Irrigation will transmit the Reports to the Controller for alteration.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 17. Read the following endorsement of the Officiating Chief Secretary to Government, dated Ootacamund, 11th October 1875, No. 576 :—

Read the following Proceedings of the Board of Revenue, dated 4th October 1875, No. 2,771.

Read the following letter from J. R. COCKERELL, Esq., President of the Local Fund Board, Nilgiris, to H. E. STOKES, Esq., Acting Secretary to the Board of Revenue, dated Ootacamund, 10th September 1875, No. 30.

THE District Engineer recently addressed to the Local Fund Board stating "The Local Fund Board Overseer Vydialingam Pillay is very much in want of an establishment to perform his office duties. All the other Overseers in this district have each been provided with a writer on a salary of Rupees 15, and two Lascars at 6 Rupees each per mensem. They are also allowed stationery, &c., under the head of contingencies." Captain Morant added that Vydialingam Pillay has as much to do as other Overseers, and that he has been obliged to throw the office work of the Overseer, much to his inconvenience, on his office establishment. He requested the Board to allow Vydialingam Pillay a Writer on Rupees 15 per mensem, and an additional Lascar on 6 Rupees per month with Rupees 30 per annum for office contingencies.

2. The Board passed the following resolution upon the letter of the District Engineer :—

"The Board will request the sanction of Government for the employment of the additional establishment from the 1st April next, and also for an allotment for contingencies. No provision can be made during the current year."

3. The reason the Local Fund Overseer has not hitherto had any establishment except a Lascar is because the appointment is recent, and on its creation the question of an establishment equal to that of other Overseers was not brought up.

SUBMITTED for the orders of Government.

2. Under G.O., Financial Department, dated 18th June 1873, No. 857, the Local Fund Overseer can be allowed a Clerk on Rupees 15 a month.

3. There is but one Lascar allotted to each of the Local Fund Overseers throughout the Presidency, but from the District Engineer's letter quoted it would appear that the Imperial Overseers of the district are allowed each two Lascars.

4. The necessity for the proposed contingent allowance of Rupees 30 per annum is not apparent, no such allowance having been granted to any Local Fund Overseers.

5. Under the present arrangements, the cost of the Local Fund Petty Establishment must be paid out of the 25 per cent. on expenditure contributed towards the cost of the Public Works Department by the Local Fund Board.

(A true Copy and Extract.)

(Signed) H. E. STOKES,
Acting Secretary.

TRANSFERRED to the Public Works Department for disposal.

(Signed) D. F. CARMICHAEL,
Officiating Chief Secretary.

No. 18. ORDER THEREON, 1st November 1875, No. 3,094.

ESTABLISHMENT, No. 1.

Now that the appointment of all Local Fund Sub-Overseers has been transferred to the Public Works Department, and that they will have to be borne on the permanent establishment lists of that department, it becomes necessary to organize such lower subordinates in a systematic manner, and to take care that they do not become disproportionate in numbers and cost to the other branches of the establishment. District Engineers therefore will report as soon as possible the numbers and salaries and allowances of all lower subordinates lately transferred to the permanent Public Works Establishments of their districts; and will report what modifications of the existing arrangements appear to them to be necessary.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 19. Read the following letter from Lieutenant-Colonel R. F. OAKES, R.E., Superintending Engineer, Tanjore, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Tanjore, 23rd October 1875, No. 2,030 :—

UNDER No. I. of the Rules published in G. O. G., No. 1,667, dated 30th September 1868, relative to the sale of property to natives by officers in the service of Government, I have the honor to forward herewith, for the orders of Government, a letter received from Lieutenant Romilly, R.E., Assistant Engineer, requesting permission to dispose of a bullock coach to a native who is employed as a contractor in his range.

From Lieutenant F. J. ROMILLY, R.E., Assistant Engineer in charge of No. 3 Range, Negapatam, to Lieutenant-Colonel R. F. OAKES, R.E., Superintending Engineer, Tanjore, dated Negapatam, 18th October 1875, No. 416.

I HAVE the honor to ask your permission to dispose of a bullock coach that I have to John Arokiem Pillay, late Head Accountant in this range, and now a contractor for certain works in the range.

2. I purchased the coach about two years ago, paying Rupees 140 for it, and used it a good deal while on special duty, and when I almost invariably had to march by night. Now I scarcely ever use it, and, as it is only lying by idle and I have no room for it in my stables, I should be glad to get rid of it.

3. It is perfectly sound and good to the best of my knowledge, and only requires repainting and a few repairs to the lining. I ask Rupees 70 for it.

No. 20. ORDER THEREON, 1st November 1875, No. 3,095.

ESTABLISHMENT, No. 2.

SANCTIONED.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 21. Read the following letter from Major J. BEATTY, R.E., Acting Superintending Engineer, Godavery, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Camp at Alamur, 7th October 1875, No. 2,068 :—

I HAVE the honor to report on the petition of Jullee Chettigadu, No. 1,695,* dated 22nd July 1875, on which orders were passed in Proceedings of Government of 30th August 1875.

* The number apparently given to the petition in the Government Office.

2. Jullee Chettigadu was a Lock Lascar at Bobberlunka Lock from 1868 to 1875. The Lock Superintendent Muniswami having had to report him two or three times in 1873 and beginning of 1874 to Captain Brockman for drunkenness, disobedience, and neglect of duty, he was removed by that officer in February last to Dowlaishweram Lock.

3. Soon after his removal to Dowlaishweram, Captain Brockman and Mr. Ellis received petitions to the same effect, purporting to come from the same parties, certain dhonymen of a dhony specified by number, and stating that Lock Superintendent Muniswami had taken a bribe from them.

4. Both Range Officers inquired into the case, and the supposed petitioners stated that they had not given a bribe or been asked for one, but that the petitions had probably been sent by Jullee Chettigadu, as he had told them he would send in such petitions. Jullee Chettigadu was thereupon (16th March) suspended for sending false and vexatious petitions against his former Lock Superintendent.

5. As he had already been removed to Dowlaishweram, there was no reason that he should any longer occupy the lock shed at Bobberlunka which he had been permitted to live in while employed there as a Lascar. The Anicut Superintendent, therefore, ordered him to leave that shed; and, as he did not do so within a reasonable time, Captain Brockman on 4th June dismissed him. His statements as to the cause of his suspension and dismissal are thus shown to be false.

6. The petitioner also states in his petition that Mr. Assistant Engineer Martin and Overseer Harris refused a bid of 3,000 Rupees made by the Perraveram ryots, at the sale of the Pitchikalunka in 1873, and that the lunka was sold at a loss to Government. The range accounts show that this is also false, and that the Pitchikalunka was purchased by the Perraveram ryots in 1873 for 6,000 Rupees.

7. The next statement in the petition to Government is that, at the sale of 1874 (conducted by the Anicut Superintendent under orders from Captain Brockman), the Pitchikalunka was sold by D. Ramannah (the Anicut Superintendent) for 1,100 Rupees, although the Perraveram ryots offered 3,000 Rupees, and that Ramannah had been bribed not to accept the offer of the people of Perraveram.

8. The accounts of the range show that the lunka was sold in 1874 for 1,250 Rupees to the ryots of Kadyapalunka, and on inquiry of the Perraveram ryots about this they explained that, as they had met with a heavy loss by purchasing the lunka in 1873 for 6,000 Rupees, they did not attend the sale in 1874, made no bid, and, as the fact of their loss was generally known, the low price obtained in 1874 is sufficiently accounted for. They know nothing about the bribe said to have been given, and never even heard of it.

9. The petitioner referred me most confidently to certain inhabitants of Perraveram for information about the bribe, giving me the names of seven persons including the Curnam of the village. These men all declared they knew nothing about it. Some of them knew the man Chettigadu by sight, but he was no friend of theirs and they knew nothing of his story. They gave me particulars of the sales of the lunka, which agreed with the range accounts.

10. The next statement in the petition is that the petitioner was asked for 20 Rupees for D. Ramannah by the Lock Superintendent, with the promise that he would then be reinstated in his post of Lock Lascar.

When I asked Jullee Chettigadu about this he declared he knew nothing about it, and that the petition-writer had put it into the petition without his knowledge.

11. But he volunteered a new story of a bribe of 20 Rupees which he was asked to give, not for or to Ramannah, but to the brother of the Lock Superintendent on this brother's marriage. He referred me to two witnesses, who both declared they knew nothing of that case, had never heard of it, and did not know Chettigadu.

12. When I asked Chettigadu if he had sent in that petition to Government, and if that was his mark at the end of it, he said it was not, but that his son had done it. His son, a youth of about fifteen years of age, then came forward, and acknowledged having paid 8 Annas to a petition-writer in Rajahmundry, who prepared it for him. There can be little doubt that this also is a lie, and that Jullee Chettigadu, finding his statements inquired into and knowing them to be false, thought it safer to throw the blame on his son.

13. My head writer recognizes the hand writing of the petition as that of an East Indian named Tishera or Texieraon, who is usually to be found about Dowlaishweram and Rajahmundry, and earns his livelihood by writing petitions.

No. 22. ORDER THEREON, 1st November 1875, No. 3,096.

ESTABLISHMENT, No. 3.

The re-employment of Jullee Chettigadu, late a Lock Lascar in the Godavery Delta, in any position in the Government service or in connection with Government work, is prohibited.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 23. Read the following letter from E. H. PRINGLE, Esq., Acting Special Executive Engineer, Wynaad, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Luckadie, 18th October 1875, No. 757 :—

UNDER G. O., No. 2,825, dated 30th September 1875, I have the honor to forward a claim for charge allowance for holding the two executive divisions of North and South Wynaad since the 14th of June 1875.

2. It will be remembered that the application for the services of Mr. Potter for North Wynaad made by Colonel Kennedy was refused by Government in their Order, No. 1,223, dated 1st May 1875, in which I was directed to take sole charge of Wynaad. This has entailed a large amount of travelling, through which I have suffered in both health and purse. The additional responsibility has, moreover, been considerable.

3. I would beg also that it may be taken into consideration that the short-handedness of the department prevented me taking three months' leave last spring, and that the further continuous service expected in paragraph 2 of G. O., No. 1,223, above mentioned, will assuredly oblige a longer absence than three months when I do obtain leave, thereby allowing privilege leave on full pay due to 4½ years' service to lapse.

No. 24. ORDER THEREON, 1st November 1875, No. 3,097.

ESTABLISHMENT, No. 4.

THE Controller will admit Mr. Pringle's claim subject to the approval of the Government of India which will be applied for.

2. Mr. Pringle is reminded that privilege leave is not claimable as a right, but only on condition of its being compatible with the interests of the public service There is no record of his having applied for leave in the spring and having been refused.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 25. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Government of India, P.W.D., dated 1st November 1875, No. 3,098.

ESTABLISHMENT, No. 5.

SIR,—In the middle of June this year, Lieutenant-Colonel Kennedy, then Special Executive Engineer, Wynaad, proceeded to England on six months' furlough, and the two executive divisions of that district were placed under the charge of Mr. E. H. Pringle, as the Honorable the Governor in Council did not consider it necessary to send an additional officer to take up duties of a special nature for the short period of Lieutenant-Colonel Kennedy's absence.

2. Mr. Pringle now puts forward a claim for charge allowance for holding executive charge of two divisions which, under the provision contained in Section 25 (*d*), Chapter VIII., of the Acting Allowance Code, the Honorable the Governor in Council has sanctioned provisionally, subject to the approval of the Government of India, and I am now to request that such sanction may be confirmed by the Government of India.

No. 26. Read the following letter from Major H. SMALLEY, R.E., Officiating District Engineer, Ganjam, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Chetterpore, 5th October 1875, No. 30 :—

I HAVE the honor to submit a preliminary report of damages done to the Communications, Irrigation Works, and Buildings in this district by heavy rain and river floods between the 14th and 20th ultimo :—

		In.	Cents.
Rainfall registered at Berhampore ...	14th	2	70
	15th	0	95
	16th	3	55
	17th	3	80
	18th	1	60
	19th	0	10
	Total ...	12	70

Rainfall at Russelconda 17th	Between 6 and 11 P.M. said to have been about 5½ inches.
Rainfall registered at Chicacole between 15th and 18th.	10 inches 65 cents, of which 3·50 inches from 6 A.M. 17th, to 6 A.M. 18th.
Rainfall at Kimedi from 17th 6 A.M., to 17th 6 P.M.	7·70 inches.

River freshes.—On the 18th there were 20 feet water in the Mahanuddy and 11 feet in the Rooskoolia at Aska.

Godahaddi at Injeli.—Register not received, but known to have overtopped the head sluice of the anicut.

The Langoolia at Chicacole came down suddenly on the night of 17th, and there were 13 feet above zero in it on the 18th.

Vamshadara at Heeramandalam.—Register not received, but believed to have been considerably higher than in 1872.

Mahendra Tanaya at 47th and 63rd miles Trunk Road.—Not reported, but believed to have been higher than in any previous year known in Kemidi Estate; nine feet on the crest of the anicut at Buttiscripooram.

Bahuda river at Itchapore.—Within 3 feet of the soffit of the bridge on the Trunk Road.

Damages to Irrigation Works.

Gumsur.

The Mahanuddy river embankments at Aska both left and right sides were overtopped and breached in several places. Old sluice at Kooper, a nowgam washed away; one immense sheet of water was thereby formed down to the junction of the Mahanuddy and Rooshkoolia rivers.

The tributaries of the Mahanuddy near Russelcondah—the Bodanoi and Lohara-kundi—were also breached, and the lands of several villages covered with sand in the Pailpada Moota.

Berhampore.

By the Godahaddi floods, a tributary of the Rooskoolia, the head sluice parapets at Injeli anicut was overtopped and the channel below breached.

By the Bahuda river floods in the Itchapore Khandam, the channels leading therefrom were nearly all breached. The following tanks were also breached:—

Pulta.
Kukudakandi.
Many others not reported.

Chicacole.

By the Vamshadara and Laugoolia floods.—

1. Sagarapugedda near Nowry banks overtopped and breached on both sides of the sluice.
2. Ampole Napati tank breached. Byree Desa Gedda breached in three places.
3. Nagaricatamen Desi Gedda overtopped and breached in ten places, and fields below under water for three or four days.
4. Polaki Desi Gedda embankment breached.
5. Lookalam channel embankment washed away for fifty yards.
6. Makivalsa calingulah, Syregam calingulah, and embankments damaged.
7. Chennapore calingulah damaged.
8. Andavaram calingulah, seven shutters carried away.
9. Peddapadu Nandigadi tank breached in two places.
10. Peddapadu Oora tank breached in four places.
11. Singupore Alli tank breached in one place.
12. Oomaravally channel dam injured.
13. Gathavalsa Padda tank bank overtopped by 1 foot 6 inches and breached in fifteen places, and calingulah damaged.

Kimedi Sub-division.

1. Kristnasagaram tank bank breached and calingulah injured.
2. Battisirepooram anicut channel below breached in four places.

3.	Tembore Soonepaghayi tank breached.	
4.	Coomoo Sarnapilli tank	do.
5.	Saravakota Gajapati Sagarum	do.
6.	Codada Panasa tank	do.
7.	Rangasagaram channel	do.
8.	Uldoo tank	do.
9.	Rathasagarum tank	do.
10.	Labara Nala	do.

DAMAGES TO ROADS.

Gumsur Sub-division.

Gopaulpore and Kalingia Road, 2½ miles near Aska under water and impassable from the 18th; several breaches near Aska. Hand-rails and parapets of bridge over Tipsur nala at Aska washed away. Many miles of broken stone and gravel washed entirely off the surface.

All the other Roads have likewise suffered in the same way, parts having been under water for from two to four days.

Berhampore.

Trunk Road overtopped for about 300 yards in the 15th and for 130 yards in 6th mile between Berhampore and Chetterpore.

Between Chetterpore and Ganjam the road was under water from 6 feet to 8 feet for three miles from the Rooskoolia; on the 19th and 20th traffic stopped. Gravel entirely washed away throughout and broken stone partly.

Between Bengal frontier and Rumbah 800 yards overtopped in the 8th, 150 yards in the 7th, and gravel washed away.

Between Ganjam and Hoomma about two miles were under water.

South of Berhampore.—Gravel was washed away in the 2nd mile; from the 17th to 19th mile was 4 feet under water on the 18th September.

The branch road at Ganjam to the Custom-house was under water for the greater part of its length.

Loop-line at Berhampore by burial-ground gravel washed away.

Gopaulpore and Kalingia road.—Gravel washed away in 5th mile near Gopaulpore third mile near Berhampore, gravel washed away for 200 yards and broken stone partly.

9th mile.—70 yards of gravel and broken stone washed away and generally damaged.

10th ,,	25	do.	do.	do.	do.	do.
12th ,,	200	do.	do.	do.	do.	do.
15th ,,	237	do.	do.	do.	do.	do.

16th to 24th mile gravel and metal washed away in places. Approaches of bridge at Injeli breached both sides.

Chicacole.

Trunk road.—Between 25th and 49th mile seriously damaged as detailed below:—

31st mile under 4 feet of water three days.

32nd mile damaged considerably, breached, and gravel and broken stone washed away.

39th mile breached in latter portion, and gravel partly washed away.

45th mile breached, and gravel partly washed away.

47th and 48th miles breached, and gravel and broken stone washed away.

49th mile.—Three enormous breaches occurred, country inundated on both sides of the road ; traffic stopped for some days.

16th mile	gravel partly washed away.				
17th ,,	do.	do.			
21st ,,	do.	do.			
23rd ,,	gravel entirely washed away.				
25th ,,	breached.				
26th ,,	breached in places, and gravel and broken stone washed away.				
27th ,,		do.	do.	do.	do.
28th ,,		do.	do.	do.	do.
29th ,,		do.	do.	do.	do.
30th ,,		do.	do.	do.	do.

Road to Poondy seriously breached in three places in the 25th mile, 300 feet, 240 feet and 168 feet in length respectively, and from 6 feet to 7 feet in depth.

Road from Nowpada to Tembore seriously damaged.

Kimedi Sub-Division.

Local Fund Roads—

Kimedi to Varanasi, 16th mile breached by Vamshadara.

Kimedi to Baguradipooram seriously breached in 43rd and 45th miles and impassable for traffic.

Kimedi to Calingapatam.—Seriously breached in 17th and 18th miles, and approaches of Mahendra Tanaya bridge damaged.

Kimedi to Poondy.—Damaged.

Estate Roads.

Kimedi and Kinchilingi road mostly washed away between Palicota and Oopalada.

Gusadi road.—Two large breaches impassable.

Puttipooram road greatly damaged, broken stone and gravel mostly washed away, and many old masonry works of stone-in-clay so seriously damaged as not to be worth repairing.

Nowtala road breached, Rajah's Palace road under water for three miles, and gravel washed away.

Kursandi road slightly damaged.

It is said that no such floods have been known at Aska within the memory of man. They were considerably higher than those of 1872, and even than those of 1866. In the Chicacole range there is no record of such floods at this time of year.

The Executive Engineer attributes the breaches made in the Trunk Road between the 25th and 49th mile to the bad order in which the Zemindari tanks are kept by the respective Zemindars, and to their consequent bursting in anything like heavy rain. A copy of his report has been sent to the Collector, and he will doubtless take steps to recover the cost of repairs from the Zemindars concerned.

It will be a very considerable time before all the damage done can be made good. Orders have been issued to all subordinates not to wait for orders, but to repair damages

as quickly as possible, submitting emergent estimates hereafter. Emergent estimates for repairs to roads in the Gumsur sub-division alone amount to Rupees 5,095 as far as received.

P.S.—Rain registered at Chetterpore

	In.	Cents.
14th	9	0
15th	5	20
16th	4	40
17th	3	85
18th	2	25
19th	0	60
	25	30

No. 27. ORDER THEREON, 1st November 1875, No. 3,099.

ESTABLISHMENT, No. 6.

THE HONORABLE the Governor in Council has read with much concern the account contained in the foregoing report of the damage occasioned by the floods in Ganjam, due to the heavy rainfall of September.

2. The District Engineer has doubtless already made arrangements for the execution of the more emergent repairs required, and it will be necessary thereafter to ascertain how far similar damage can be prevented in the future.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 28. Read the following letter from W. C. FURNIVALL, Esq., Under Secretary to the Government of India, Public Works Department (Railway), to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department (Railway), dated Simla, 22nd October 1875, No. 2,628 R.:—

I AM directed to acknowledge the receipt of your Nos. 2,739 and 2,806, dated the 21st and 29th September 1875, respectively, reporting anticipated progress with the lines under construction on the South Indian Railway, and in reply to say that the northern line should be completed and opened to the proposed goods station at Madras, as soon as possible, as recommended by Mr. Logan.

No. 29. ORDER THEREON, 2nd November 1875, No. 3,100.

RAILWAY, No. 4.

COMMUNICATED to the Consulting Engineer for Railways for the guidance of the Railway authorities with reference to the under-mentioned orders:—

G. O., No. 2,738, dated 21st September 1875.
" " 2,805, " 29th " "

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 30. Read the following letter from W. C. FURNIVALL, Esq., Under Secretary to the Government of India, Public Works Department (Railway), to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department (Railway), dated Simla, 12th October 1875, No. 2,545 R. :—

I AM directed to forward, for information, a book of tables for determining the scantlings of beams and joists of teak by Mr. E. H. Stone, Civil Engineer, together with copy of a memorandum by the Consulting Engineer to the Government of India for State Railways on the subject.

STATE RAILWAYS.

Memorandum by the Consulting Engineer to the Government of India for State Railways on Mr. Stone's Book of Formulæ and Tables for Beams.

THE book of tables and formulæ for teak beams by Mr. Stone bears evidence of considerable ability and originality on the part of the author, and points out errors into which Engineers may, without reflection, fall.

The only fault I have to find with the book is that it is too bulky and wants condensation, and the formulæ might be simplified.

Mr. Stone gives two formulæ, one involving the cube, and the other the 4th power—one for strength, and the other for stiffness : his *modus operandi* is to calculate the weight by both of these, and then to select that which gives the lowest result. It appears to me that this is unnecessary, as there is a point where the depth of the beam is equal to $\frac{1}{15}$th of the span ; consequently on either side of this point, either one or the other may be neglected.

Moreover, it is possible, by making all terms functions of the span, to simplify the formulæ and eliminate from them the cube and 4th power ; this I do by the construction of coefficients for the depth. My formulæ for the construction of these coefficients is given on the accompanying diagrams. Mr. Stone's two formulæ—

$$W = \frac{d^3}{\cdot 00937\ L} \text{ ; and}$$

$$W = \frac{d^4}{\cdot 0075\ L^2} \text{ ; are by these}$$

means reduced to one very simple formula $W = S^2 K$.

When S = clear span in feet,

K = coefficient varying with the depth,

W = safe load distributed in lbs.

If it be desired to find the depth, the converse formula,—

$K = \frac{W}{S^2}$ may be used instead of the two following formulæ given by Mr. Stone.

$$d = \sqrt[3]{\cdot 00937\ L\ w} \text{ ; and}$$

$$d = \sqrt[4]{\cdot 00752\ L^2\ w}$$

Having found the value of K by the formula $K = \frac{W}{S^2}$, the depth corresponding to it will be found in the table of values of K.

The adoption of this simple formula enables a corresponding reduction in the diagrams.

To illustrate the system suggested by Mr. Stone, 25 diagrams will be required for spans from 6 to 30 feet, whilst, on the system I propose, only one is necessary to give the safe loads, and another to give the weights of the beams. The diagrams are, moreover, of more simple

construction. The table of the values of K may be worked out to any desired degree so as to obtain close results. I have worked out coefficients for 11 different depths, which will, I believe, be more than will be required in practice. In fact, except in special cases, it is not desirable to adopt depths smaller than $\frac{1}{15}$th of span, as it is not an economical form, and in many cases the cost of large timber precludes the possibility of adopting beams of great depth.

There is one other point in which I think Mr. Stones's book fails, and that is in not providing for beams of other dimensions than those whose breadth is two-thirds of the depth.

In some cases, it is found convenient to cut two beams out of a square balk, and then the dimension of the breadth $= \frac{1}{2}$ the depth is adopted: in some cases, moreover, to save the joists, beams of these dimensions are used, and I think that to be perfect a book should have the weights of beams of both these classes.

All that appears to me to be necessary are the diagrams A and B to guide the eye, the formula written on them for more close calculation, and a table C with the most useful spans worked out, in fact three pages of foolscap. To these might be added two diagrams similar to A and B for beams whose breadth is half their depth.

The diagrams and tables worked out by my formulæ are appended.

26th July 1875. G. L. M.

FORMULÆ.

S = Span of beam in feet.

D = Depth of beam in feet.

d = Depth of beam in inches.

W = Safe load distributed in lbs.

$\frac{1}{n}$ = Proportion of depth to span $= \frac{D}{S}$.

$W = S^2 K.$

$K = 80 \left(\frac{12}{n}\right)^3$ when $\frac{1}{n}$ exceeds $\frac{1}{15}$th span
$= 100 \left(\frac{12}{n}\right)^4$ when depth is less than $\frac{1}{15}$th span } when breadth of beam $= \frac{1}{2}$ depth.

$K = 106{\cdot}723 \left(\frac{12}{n}\right)^3$ when depth exceeds $\frac{1}{15}$th span
$= 133{\cdot}333 \left(\frac{12}{n}\right)^4$ when depth is less than $\frac{1}{15}$th span } when breadth of beam $= \frac{2}{3}$ depth.

w = Weight in lbs. of unsupported length of beam.

$w = k S^3.$

$k = \frac{22{\cdot}5}{n^2}$ when breadth of beam $= \frac{1}{2}$ depth.

$k = \frac{30{\cdot}0}{n^2}$ when breadth of beam $= \frac{2}{3}$ depth.

C.

TEAK BEAMS.

Breadth two-thirds of the Depth.

Span in Feet.	Breadth of Beam in Inches.	Depth of Beam in Inches.	Safe load in lbs. distributed.	Weight of the (unsupported length of) beam.	Safe load in lbs. deducting Weight of Beam.	Distance of Beams apart, with loads per superficial foot, including Weight of Floor.		
S.	b=·533 S.	d=·8 S.	W=54·6 S²	w=·1333 S³	W—w	1 cwt.	1½ cwt.	2 cwt.
FEET.	INCHES.					FEET.	FEET.	FEET.
10	5·33	8·	5,466	133	5,333	4·7	3·1	2·3
12	6·4	9·6	7,862	230	7,632	5·6	3·7	2·8
14	7·46	11·2	10,702	366	10,336	6·5	4·3	3·2
16	8·53	12·8	13,978	546	13,432	7·4	4 9	3·7
18	9·60	14·4	17,690	777	16,913	8·3	5·6	4·1
20	10·67	16·0	21,840	1,067	20,773	9·2	6·1	4·6
22	11 73	17·6	26,426	1,420	25,006	10·1	6 7	5·0
24	12·80	19·2	31,450	1,843	29,607	11·0	7 3	5·5
26	13·86	20·8	36,910	2,343	34,567	11·8	7·9	5·9
28	14·9	22·4	42,806	2,927	39,879	12·7	8·4	6·3
30	16·0	24·0	49,140	3,600	45,540	13·5	9·0	6·7

TEAK BEAMS.

Breadth half the Depth.

Span in Feet. S.	Breadth of Beam in Inches. $b = \cdot 4\ S.$	Depth of Beam in Inches. $d = \cdot 8\ S.$	Safe load in lbs. distributed. $W = 41\ S^2$	Weight of the (unsupported length of) beam. $W = \cdot 1\ S^2$	Safe load in lbs. deducting weight of beam. W—w	Distance of Beams apart from centre to centre per superficial foot. 1 cwt.	1½ cwt.	2 cwt.
FEET.	INCHES					FEET.	FEET.	FEET.
10	4·0	8·0	4,100	100	4,000	3·5	2·3	1·7
12	4·8	9·6	5,904	173	5,731	4·2	2·8	2·1
14	5·6	11·2	8,036	274	7,762	4·9	3·2	2·4
16	6·4	12·8	10,496	410	10,086	5·6	3·7	2·8
18	7·2	14·4	13,284	583	12,701	6·3	4·2	3·1
20	8·0	16·0	16,400	800	15,600	6·9	4·6	3·4
22	8·8	17·6	19,844	1,065	18,779	7·6	5·0	3·8
24	9·6	19·2	23,616	1,382	22,234	8·2	5·5	4·1
26	10·4	20·8	27,716	1,758	25,958	8·8	5·9	4·4
28	11·2	22·4	32,144	2,195	29,949	9·5	6·3	4·7
30	12·0	24·0	36,900	2,700	34,200	10·1	6·7	5·0

No. 31. ORDER THEREON, 2nd November 1875, No. 3,101.

RAILWAY, No. 5.

THE memorandum by the Consulting Engineer to the Government of India for State Railways will be recorded and communicated to all officers of the department for information.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 32. Read the following letter from Major J. W. HINDLE, Officiating District Engineer, Vizagapatam, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Waltair, 20th October 1875, No. 1,169 :—

WITH reference to paragraph 1 of G.O., No. 2,248, dated 4th August 1875, I have the honor to submit herewith, after communicating with the Collector, a revised list of works for entry in the Provincial Budget for the ensuing official year.

1 List of Cutcherries.
1 Copy of letter, No. 182, dated 28th September 1875, from No. 1 Range Officer.
1 Do. of do. No. 132, dated 12th May 1873, to No. 1 Range Officer.

2. The Collector states that the three works entered in the list are of equal importance, and that the building for the Senior Assistant Collector's Cutcherry at Parvatipore, for which provision was made in my Budget, dated 28th September 1875, is not urgently needed.

3. With regard to paragraph 2 of the Government Order above quoted, I beg to send copy of a letter and of its enclosure received from the Assistant Engineer in charge of Golgondah Range, explaining at whose request the estimate for improvements to the Nursipatam Cutcherry was prepared.

List of Works proposed to be undertaken during the official year 1876-77.

Work.	Estimate.	Amount required for expenditure in 1876-77.	Remarks.
	RS.	RS.	
Certain additions and improvements to the Collector's Cutcherry at Vizagapatam	5,620	5,620	These works have been entered in my Provincial Budget for 1876-77.
Sub-Magistrate's Cutcherry and Sub-Jail at Salur	...	5,000	
Two lock-ups and another room in the Salt Cutcherry at Balacheruvu ...	...	2,500	

WALTAIR,
20*th October* 1875.

(Signed) J. W. HINDLE, Major,
Offg. District Engineer, Vizagapatam.

From F. BRICKWELL, Esq., C.E., Assistant Engineer in charge of Golgondah Range, to Major J. W. HINDLE, Officiating District Engineer, Vizagapatam, dated Yellamunchelly, 28th September 1875, No. 182.

WITH reference to your endorsement, No. 868 of the 2nd instant, on the G.O., No. 2,248, of the 4th ultimo, requesting to state at whose instance the estimate for improvements to the Nursipatam Cutcherry was prepared, I have the honor to enclose a copy of the letter received from the Principal Assistant Collector, in which he asked my opinion whether a new Cutcherry should be built for the Tahsildar at Nursipatam, or whether it would be worthwhile to repair the old one. This matter I brought to your notice in my No. 671, of 2nd September 1873, in which I requested you to furnish me with a plan, which was prepared and sent to me with your letter No. 453, of the 1st June 1874.

2. I further have the honor to refer you to G.O., No. 1,691, of the 24th June 1874, which contains the list of Civil Buildings submitted by the Board of Revenue for guidance of District Engineers in preparation of plans and estimates for future Budgets.

From A. CRUICKSHANK, Esq., Principal Assistant Collector, to F. BRICKWELL, Esq., C.E., Assistant Engineer in charge of Golgondah Range, Yellamunchelly, dated 12th May 1873, No. 132.

THE Cutcherry of the Tahsildar at Nursipatam is in very bad order, and I have therefore the honor to request that you will be good enough to take steps to have it repaired.

2. I myself do not think that there is much use in spending much on repairing it, for a new one must, I should think, be built soon.

3. I shall feel obliged by your letting me know what you think of the building, so that if you think spending much on repairing it would be merely wasting money, I may write to the Collector and request him to take steps to have the construction of a new Cutcherry sanctioned.

No. 33. ORDER THEREON, 2nd November 1875, No. 3,102.

CIVIL WORKS, No. 2.

ORDERED to be recorded.

2. The list of works is for the District Engineer's guidance in the preparation of

plans and estimates, without previous sanction of which no entries can be made in Budget Lists.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following papers :—

No. 34. From Major J. BEATTY, R.E., Acting Superintending Engineer, Godavery District, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Dowlaishweram, 18th September 1875, No. 1,870.

3 Estimates.
3 Plans.
2 Specifications.
1 Sheet of Data.
1 Range Officer's Report.

In his report printed with G. O., No. 1,271, of 5th May 1875, the Master Attendant of Madras recommended that a suitable staging or building be erected on a site to be chosen on the shore opposite or a little to the northward of the present anchorage off Cocanada, and Government were pleased to direct me to submit a plan and estimate for the necessary structure. I have now the honor to submit plans and estimates for three buildings of the kind required.

2. The height proposed for the tower or staging has been approved by the Master Attendant of Madras, who also personally inspected and selected the spot where it is to be built, on his recent visit to Cocanada.

3. As the site of the proposed new lighthouse is within ten miles of the head-quarters of No. 5 Range at Samulcottah, I requested the present Range Officer, Mr. Assistant Engineer Larminie, to estimate for the kind of structure which, after consulting the Master Attendant at Cocanada, appeared to me to be most suitable; *viz.*, a light iron staging on a masonry basement.

4. Estimate No. 1 therefore provides for this; and the rates are such that the ironwork can be obtained from the Napier Foundry, if for any reason the Dowlaishweram Workshop was unable to undertake the work. The Master Attendant of Madras would doubtless have preferred this plan; but, finding that masonry or brick-work would be less expensive, at his suggestion I have also estimated for a brick tower.

5. Estimate No. 2 shows the probable cost of a tower to be constructed of brick-work. As there is no good soil for brick making obtainable any where near Vakalapudi, I have provided in the estimate a rate sufficient to cover the cost of getting bricks from Madavapatnam about five miles off, the nearest place where it is known that fair soil for brick making can be had. I propose to use only the best bricks specially selected for this work and thoroughly burnt. Allowance has also been made for the great waste in carting such a distance over the open country. Some deduction may be made from this estimate if the old lighthouse is first pulled down and the foundations and basement built with the stone obtained from it.

6. Estimate No. 3 is for a tower of cut stone similar to the one now in use at Cocanada, and of the same dimensions as the brick tower abovementioned. This estimate provides for utilizing whatever good stone may be obtained by demolishing the Cocanada lighthouse. I have made a deduction in this estimate for the value of old stone to be

so obtained, but this is a mere guess. It is possible that the stone may be so broken up in the course of demolition that it would only be fit for use in the foundations and basement of the new building. The Cocanada lighthouse is supposed to have cost about 30,000 Rupees, but I have not been able to ascertain the correct amount from the records.

7. I consider the light iron staging specially suitable, because in a few years it may be found necessary to move the 4th-class dioptric light from Vakalapudi further up the coast. Within the last thirty years the anchorage has shifted some miles to the northward, and if this movement continue the lighthouse must ere long again be found to be in the wrong position.

8. The estimate for a brick lighthouse comes to Rupees 6,600, the cost of a cut stone building would be Rupees 9,900, and the light iron staging with a masonry basement is estimated at Rupees 12,950.

No. 594.

Referred to the Master Attendant, Administrative Department, for report.

Ootacamund, 30*th September* 1875.

(Signed) G. W. WALKER, Major-General, R.E., *Secretary to Government, P.W.D.*

No. 34-A. From Captain J. H. TAYLOR, R.N.R., Acting Master Attendant, Administrative Department, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 19th October 1875, No. 6,600.

Letter from Acting Superintending Engineer, Godavery District, to Chief Engineer and Secretary to Government, Public Works Department, No. 1,870, dated 18th September 1875.
3 Estimates.
3 Plans.
2 Specifications.
1 Sheet of Data.
1 Range Officer's Report.

I have the honor to return the papers marginally noted, received with your endorsement, No. 594, of date 30th September 1875, and to recommend the adoption of the plan and estimate for the brick light column, at a cost of 6,600 Rupees, to exhibit a revolving light of the 4th order dioptric. The present stone tower at the mouth of the Cocanada river should be demolished, and the materials either used for the foundation and basement of the new column at Vakalapudi or sold and credited to the General Port Fund.

No. 35. Order thereon, 2nd November 1875, No. 3,103.

CIVIL WORKS, No. 3.

His Excellency the Governor in Council concurs with the Master Attendant of Madras in considering that a brick tower will answer the purpose of a lighthouse at Vakalapudi. He accordingly sanctions the plan and estimate of Rupees 6,600, subject to reduction on account of stones of the old column used in its foundation and basement which will be reported. Major Beatty deserves much credit for the pains that he has taken to work out the alternative plans of lighthouses submitted by him. The work will be entered in the Provincial Budget of 1876-77 to be carried out with Port Funds with an allotment of Rs. 6,000.

(Signed) G. W. WALKER, Major-General, R.E., *Secretary to Government.*

Read the following papers :—

No. 36. Proceedings of the Madras Government in the Judicial Department, dated 26th July 1875, No. 1,650.

Read the following letter from the Inspector-General of Police, to the Chief Secretary to Government, dated 14th July 1875, No. 3,481.

I HAVE the honor to forward, for submission to Government, a letter* from the Superintendent of Police, Madura, in which he brings to notice the insufficient accommodation which exists in the building now used as District Police Office at Madura, and requesting that he may be allowed to occupy a part of the building about to be vacated by the Collector when his office is removed into the Palace.

* No. 175, dated 27th June 1875, with three enclosures.

From Captain F. KILGOUR, Superintendent of Police, Madura, to Lieut.-Colonel C. S. HEARN, Inspector-General of Police, Madras, dated Madura, 27th June 1875, No. 175.—Through the Deputy Inspector-General.

I HAVE the honor to forward, for your perusal, copy of a letter sent by me to the Collector of Madura, on the subject of the Cutcherry buildings which will shortly be vacated, and his reply.

2. The accommodation my present office gives is insufficient; the Police school has to be kept in the old barracks, which are upwards of a mile from my office; the arms have also to be kept there, which necessitates an extra guard.

3. It is very desirable that my office, stores, school, &c., should be transferred to the Collector's Cutcherry, when it is vacated by him. As will be seen from the Collector's letter, it is estimated that this building can be sold for Rupees 20,000; that part of the Cutcherry occupied by the Huzur Treasury, guard-room, &c., will not be required.

4. A reference to the Collector's letter will show that it is proposed to build the new Subsidiary Jail and Town Magistrate's Office on the vacant piece of ground immediately behind the buildings I wish to occupy.

5. It will further be seen from the Collector's letter that the Postmaster-General has also applied for this building.

6. The Collector is in favor of the building I apply for being transferred to the Police Department; centralizing the various Police buildings will be a great advantage. It appears to me that so much accommodation cannot possibly be required by the Postal Department; I should imagine that the buildings now used as a Huzur Treasury, guard-room, store-room, &c., also shown in plan, will give ample space for a Post Office. The Collector in his letter estimates the value of these at Rupees 10,000.

7. If the Postmaster-General will consent to take over this portion of the building as a Post Office, and should my proposal be generally approved of, I will enter into further communication with the Collector; it will also be advisable to have the buildings surveyed and valued by the Public Works Department.

From Captain F. KILGOUR, Superintendent of Police, Madura, to W. McQUHAE, Esq., Collector of Madura, dated Madura, 15th May 1875, No. 217.

I UNDERSTAND that the building now being used by you as a Cutcherry will be vacated on your office being transferred to the palace.

2. The accommodation in my office being insufficient, I have the honor to request that this building may be handed over to the Police Department on the transfer being made.

From W. McQUHAE, Esq., Collector of Madura, to Captain F. KILGOUR, Superintendent of Police, Madura, dated Camp at Shembaganoor, 29th May 1875, No. 1,147.

G.Os., dated 15th and 13th January 1872, Nos. 81 and 140, respectively, R. D.

WITH reference to your letter, dated 15th May 1875, No. 217, I have the honor to inform you that Government have already decided that the present Huzur Cutcherry building should be sold, and the value thereof used for completing the quarters destined for the Collector and the Judge in Terumal Naick's Palace. It is estimated that the Collector's Cutcherry can be sold for about 20,000 Rupees, and the whole of the buildings, including Taluq Cutcherry, &c., may realize about 30,000 Rupees.

G.O., 29th January 1875, No. 206 R. D.

2. In February 1872 the Postmaster-General applied for a portion of the Cutcherry building for the use of the Post Office at Madura, and the accommodation required by him will take up nearly three-fourths of the buildings. The subject is now under the consideration of Government.

To Government, dated 8th May 1875, No. 189.

3. A proposal has also been submitted to Government to take up the whole of the vacant ground between the Printing Office and the Huzur and Taluq Cutcherries as a site for a new Subsidiary Jail and Town Magistrate's Office.

4. In these circumstances, any application for the building, if it is wanted by the Police, should be made to Government through the Head of the Department. I do not know whether the Postmaster-General will pay the sum asked for the building.

THE Superintendent's proposal appears good.

2. The cost of the portion of the old Cutcherry required by the Police will be about Rs. 10,000 if the building has to be sold; it may perhaps be possible to have it transferred to the Police Department.

COIMBATORE,
8th July 1875.

(Signed) A. M. DAVIES,
Deputy Inspector-General of Police.

To the Inspector-General of Police, Madras.

G.O., dated 22nd July 1875, No. 1,621.

ORDERS having been passed on the letter from the Collector of Madura, dated the 8th May 1875, No. 189, these papers will be referred, through the Public Works Department, to the District Engineer for report, keeping in view the Collector's letter, dated 29th May 1875, No. 1,147, to the Superintendent of Police, Madura.

(True Extract.)

(Signed) CHARLES MACLEAN,
Acting Under Secretary.

No. 360.

FORWARDED to the District Engineer, Madura, for required report.

OOTACAMUND,
9th August 1875.

(Signed) J. O. HASTED, Major, R.E.,
Offg. Joint Secy. to Govt., P.W.D.

No. 36-A. From Lieutenant-Colonel J. F. FISCHER, R.E., District Engineer, Madura, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madura, 20th October 1875, No. 2,958.

1 Plan of the Huzur Cutcherry.
1 Original enclosure, No. 360, under date the 9th August 1875, on G.O., in the Judicial Department, No. 1,650, dated 26th July 1875, with its four enclosures.

WITH reference to your endorsement, No. 360, under date the 9th August 1875, on G.O., in the Judicial Department, of the 26th July 1875, No. 1,650, I have the honor to report that I concur in all the arrangements proposed by the Superintendent of Police, Madura, and consider they can be adopted economically and beneficially for the public service as the best which may be devised.

2. I take the opportunity to submit, for the consideration of Government, accompanying copy of a letter from the Collector of Madura, No. 2,263, dated the 15th instant, affording his opinion regarding the disposal of the present Huzur Cutcherry building with reference to G.O., No. 2,546, 8th September 1875. I consider the Post Office can be located in the building now in use by the Police, and in this also the Telegraph Office required for Madura may be put, but it is very advisable, in so large a town as this, to have the Police in the most advantageous position, near the large pagoda and the chief markets.

All original documents and the plans, I beg to add, are herewith returned.

From H. W. BLISS, Esq., Acting Collector of Madura, to Lieutenant-Colonel J. F. FISCHER, R.E., District Engineer, Madura, dated Madura, 15th October 1875, No. 2,263.

IN reply to your letter, No. 2,723, dated 5th October 1875, I have the honor to state that, in my opinion, it will be useless to attempt to sell the Cutcherry unless we can give some idea to intending purchasers of the time that will elapse before they can be allowed to enter into possession. For all I can tell, it may be ten years. If you can give me any idea I may be able to take steps for the sale of the building. If not, I must write to Government and request permission to postpone the sale. In the meantime the Superintendent of Police should do as Mr. McQuhae advised him, that is, apply to Government for the building, through the Inspector-General. It might also be worthwhile to point out that the Director-General of Post Offices in India is vastly mistaken if he thinks he can build a suitable Post Office in a central position in Madura for less than half, Rupees 15,000. It would be a pity, I think, that so suitable a building for a Post Office should be lost through a misapprehension on the part of the Director-General.

No. 37. ORDER THEREON, 2nd November 1875, No. 3,104.

CIVIL WORKS, No. 4.

ACCOMMODATION being required at Madura for the Postal, Telegraph, and Judicial Departments, and existing public buildings being available for its provision to a considerable extent, His Excellency the Governor in Council desires that the Postmaster-General, the Deputy Superintendent of Telegraphs, Madras Division, and the Superintendent of Police will arrange for meeting at Madura, and settling, in personal communication with the Collector and District Engineer, how such existing buildings may best be utilized. The District Engineer will then value each block required by other departments in order that credit

may be given for similar amounts in the Budget of 1876-77, to complete the Collector's new offices in Tirumal Naick's Palace.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 38. Read the following letter from Captain L. CONWAY-GORDON, R.E., Controller of Public Works Accounts, to Major-General G. W. WALKER, R.E., Chief Engineer, Public Works Department, dated Fort St. George, 27th October 1875, No. 117 W. :—

WITH reference to the Proceedings of Government, in the Public Works Department, No. 2,964, dated 16th October 1875, I have the honor to forward herewith the following statements showing the actual receipts and outlay up to August, and the approximate receipts and outlay for September 1875, relating to the Buildings and Roads Branch of the accounts of this office :—

I.—Statement showing the actual receipts up to August and approximate for September 1875.

II.—Statement showing the actual expenditure up to August and approximate for September 1875.

2. The credit orders issued for October and November 1875 are as follows :—

	RS.
October 1875	8,71,476
November „	7,08,941

up to date.

3. The columns in the statement marked (A) have been left blank with a view to their being filled up in your office.

IMPERIAL, MILITARY, AND CIVIL BUILDINGS.

Statement showing the Actual Receipts up to August, Approximate for September 1875, *and Estimate for remaining portion of Official year.*

—	Budget Estimate.	Actuals up to August 1875.	Approximate for September 1875.	Total to end of September 1875.	Estimate for remaining portion of official year.	Total.	Remarks.
Public Works Department.	RS.	RS.	RS.	RS.	RS.	RS.	
Tolls, dues, fees, fines, and refunds.	2,500	3,994	799	4,793	1,678	*a* 6,471	*a.*—This excess is caused by some surplus stock having been brought to account by a credit to Imperial Revenue.
Rents of buildings ...	18,000	7,483	1,497	8,980	9,020	18,000	
Sales of produce	500	8	2	10	30	*b* 40	*b.*—This item of receipt was probably over-estimated by the Controller of Public Works Accounts, judging from the actual receipts.
Sales of buildings, old materials. Tools and Plant	52,500	12,009	2,401	14,410	38,090	*c* 52,500	*c.*—It is difficult to estimate the item correctly, as it includes the profit of the Public Works Workshops.
Total receipts by Public Works Department ...	73,500	23,494	4,699	28,193	48,818	77,011	

Statement showing the Actual Receipts up to August, Approximate for September 1875, *and Estimate for remaining portion of Official year.*—(Concluded.)

—	Budget Estimate.	Actuals up to August 1875.	Approximate for September 1875.	Total to end of September 1875.	Estimate for remaining portion of official year.	Total.	Remarks.
Civil Department.	RS.	RS.	RS.	RS.	RS.	RS.	
Tolls, dues, fees, fines, and refunds.	4,500	...	...	...	2,000	2,000	These items have probably been over-estimated, judging from the actual average receipts during the past two years; the receipts themselves are naturally of a very fluctuating character.
Rents of buildings	...	...	...	...	...	...	
Sales of produce	...	...	...	...	...	...	
Sales of buildings and old materials.	500	...	...	...	250	250	
Total receipts by Civil Department ...	5,000	...	...	...	2,250	2,250	
Grand Total, Receipts ...	78,500	23,494	4,699	28,193	51,068	79,261	

IMPERIAL, MILITARY, AND CIVIL BUILDINGS.

Statement showing the Actual Expenditure up to August, Approximate for September 1875, *and Estimate for remaining portion of Official year.*

—	Budget Grant.	Expenditure.					Remarks.
		Actual to August 1875.	Approximate for September 1875.	Total to end of September 1875.	Estimate for remaining portion of official year.	Total.	
Ordinary.	RS.	RS.	RS.	RS.	RS.	RS.	
Military.							
Original Works	3,84,000	1,35,294	27,059	1,62,353			
Repairs	2,50,000	93,023	18,725	1,12,348			
Establishment	1,51,000	57,229	11,446	68,675			
Tools and Plant	15,000	25,406	5,081	e 30,487			e.—This amount will be subject to reduction at the close of the year, when the value of English supplies of Tools and Plant in the Store Department will be distributed to all heads of service except Extraordinary, Provincial and Local.
	8,00,000	3,11,552	62,311	3,73,863			
Less decrease of Stock ...	...	...	...	a 27,657			a.—These amounts represent the decrease in the balance under "Stock" up to August 1875.
Less decrease of grant to meet expenditure in England	12,000	...	...	b 6,138			b.—Net credit afforded to expenditure in England up to August 1875.
	7,88,000	...	...	3,40,068			
Add increase of London Invoices, Ordinary ...	...	...	...	c 1,651			c.—These amounts represent the increase in the balance under "London Invoices" up to August 1875.
Total Expenditure, Military.	7,88,000	...	...	3,41,719	4,46,281	7,88,000	

Statement showing the Actual Expenditure up to August, Approximate for September 1875, *and Estimate for remaining portion of Official year.*—(Concluded.)

—	Budget Grant.	Expenditure. Actual to August 1875.	Approximate for September 1875.	Total to end of September 1875.	Estimate for remaining portion of official year.	Total.	Remarks.
Civil Buildings.	RS.	RS.	RS.	RS	RS.	RS.	
Original Works	d 19,000	12,562	2,512	15,074			d.—Inclusive of Rupees 1,000 sanctioned by Government of India, No. 128, dated 14th June 1875.
Repairs	5,000	2,824	565	3,389			
Establishment	6,000	13,066	2,613	f 15,679			f.—In addition to the 25 per cent. on works and repairs, this amount includes the Establishment charges on account of the coal-boaring operations up to July 1875, amounting to Rupees 5,872, and the Establishment charges for the Madras Harbour Works for July and August and approximate for September 1875, amounting to Rupees 6,932.
Tools and Plant	4,000	428	85	513			
	34,000	28,880	5,775	34,655			
Less decrease of Stock ...	...	...	...	a 1,859			
Less decrease of grant to meet expenditure in England	1,400	...	...	b 413			
	32,600	...	...	32,383			
Add increase of London Invoices, Ordinary ...	...	...	...	c 111			
Total Expenditure, other services	32,600	...	...	32,494	106	32,600	

Nos. 39 & 40. ORDER THEREON, 2nd November 1875, No. 3,105.

ACCOUNT, No. 2.

ORDERED that copy of the above letter, with statements enclosed, be forwarded to the Government of India with reference to letter, No. 618-32 A. G., dated 7th October 1875.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 41. (DOCKET No. 3,106, dated 2nd November 1875.)

COPY of the above forwarded to the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 42. Read the following letter from Captain L. CONWAY-GORDON, R.E., Controller of Public Works Accounts, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 19th October 1875, No. 108 W. :—

I HAVE the honor to forward you, for the information and orders of Government, copies of correspondence between the Accountant-General, Public Works Department, and this office, relative to the preparation of Appendix A of the Budget Estimate.

1 Letter from the Accountant-General, Public Works Department, No. 1,307 G, dated 9th June 1875.
1 Letter from the Controller of Public Works Accounts, Madras, No. 29 A, dated 10th August 1875.
1 Letter from the Accountant-General, Public Works Department, No. 2,101 G, dated 8th September 1875.

2. In my letter No. 29 A, you will observe that I informed the Accountant-

General, Public Works Department, that no difficulty will be experienced in drawing out this appendix as required by the Government of India, provided that the expenditure on establishments is compared with the expenditure on works by *Districts* instead of by *Ranges*, and provided I am supplied by Government with copies of the Budget Estimates as soon as they are prepared.

3. In reply, the Accountant-General, whilst accepting the proposals of this office, again points out the desirability of preparing this Appendix A by *Ranges* instead of *Districts*.

4. In putting forward my original proposal to draw up this appendix by *Districts*, I had in view the Budget Estimates as at present prepared in Madras which differ so far from the Budget Estimates of the rest of India, inasmuch as under the 1st column in Part II. headed '*Executive Division*,' the administrative *District* is entered, and not the executive *Range*. From the Budget in its present form it is therefore impossible for the Controller to compile a statement showing the estimated expenditure by Executive Divisions or Ranges.

5. On a re-consideration of the case, however, it has occurred to me that it would be easy to meet the wishes of the Government of India by simply filling in the form of Budget Estimate in the manner originally intended, entering under the column headed '*Executive Division*' the name of the Range as well as of the District in which the works are situated. No additional labor would be thereby involved, as District Engineers must, it is conceived, base their Budget Estimates on the expenditure of their several Ranges.

6. The following is then the manner in which I think the wishes of the Government of India could best be met :—

(*a.*) In each of the four Budget Estimates in the parts relating to the expenditure on works, either original or repairs, the Range concerned should be specified against each item as well as the name of the District.

(*b.*) All grants at the disposal of District Engineers for Minor New Works, though held as at present for allotment throughout the District, should be shown in the Budget Estimate, divided off amongst the Ranges.

(*c.*) In a similar way, all grants for Repairs General and Miscellaneous should be shown divided off to the Ranges concerned. In this and the last division no difficulty will be experienced, for, as before remarked, the amounts now shown against Districts are probably based on estimates drawn up by Ranges.

(*d.*) All grants held by Government at the disposal of the Chief Engineer or of Government to be apportioned off in Appendix A between the Ranges in the best manner practicable by the Controller in communication with the Chief Engineer.

7. To enable me to prepare Appendix A in due time, I should be much obliged by receiving a copy of each of the Budget Estimates as soon as prepared, either in manuscript or a proof copy. At present, I am not supplied at all with copies of the Local Fund Budget Estimate. In future, to enable me to prepare this Appendix A in due time, it is important that I should receive a copy of the Local Fund Budget Estimate at the earliest practicable date.

From Lieutenant-Colonel J. McLEOD-INNES, Accountant-General, Public Works Department, to Captain L. CONWAY-GORDON, R.E., Controller of Public Works Accounts, Madras, dated Simla, 9th June 1875, No. 1,307 G.

No. 2,213, dated 12th August 1874, from the Secretary to the Government of Madras.

THE Government of India has referred to me, for report, the letter noted in the margin, from which it will be seen that the Government of Madras do not think it practicable to adopt our form for Appendix A of the Budget, which, as you are aware, is meant to compare the cost of establishment with that of works and repairs. Whatever difficulties may be anticipated in its preparation, it is necessary that they should be overcome, and a copy of a note showing how they may apparently be met is herewith forwarded. I shall be glad to be favored with an expression of your views on the subject, and especially of your ideas of the best arrangements for facilitating the preparation of the statement referred to.

Appendix A of the Budget Estimate showing Cost of Establishment compared with Grant for Works and Repairs.

THE new form of Budget Estimate that had to come into force from 1872-73 had for one of its appendices a statement showing cost of establishment compared with grant for works and repairs.

2. The Madras Government did not submit such an appendix with its Budgets for the years 1872-73 to 1874-75. In the orders on the Budget for 1874-75, the appendix was called for, in reply to which the Madras Government send copy of a letter from its Controller, which it is said will "explain the impracticability of adopting the Government of India form of Appendix A"; and it is hoped satisfy that Government that any statement prepared in accordance with it must, so far as this Presidency is concerned, be necessarily imperfect." In consideration of these circumstances, the Government of Madras request that the Government of India will not insist on the form in question being adhered to in Madras.

3. First as to the object of the form. It shows in a tabular form the number and cost of the establishment in each division as compared with the grant for works and repairs, thus :—

—	Executive Engineers.	Assistant Engineers.	Upper Subordinates.	Lower Subordinates.	Accountants.	And so on.	Total Cost of Establishment.	Provision for Travelling Allowances and Contingencies.	Total for Establishment.	Grant from Imperial Funds for Works and Repairs.	Grant from Provincial or Local Funds.
First Circle.											
——— Division											
——— do.											
——— do.											
Superintending Engineer ...											
Total ...											
Second Circle.											
(As above).											
Chief Engineer											
Accountants											

4. The object of the information is obvious. It is to show whether the outlay in any division is disproportionate to its establishment, and to lead to inquiry, whether the establishment of the division could not be reduced or amalgamated with other divisions. Statements rendered in the form laid down have led to reductions in establishment, and it was only the other day that the figures of the return from the Central Provinces led to the abolition of one

division. And the return is made a portion of the Budget Estimate so as to enable a comprehensive review being taken of the contemplated operations of the department, and to enable Local Governments to decide what establishments should be kept up during the year; and the circumstances of such a statement being attached to the Budget Estimate, admits of inquiries being answered during the year, as to the cost of establishment in any division, or the outlay on works, &c., in it, and further facilitates disposal of applications for additional establishment. The want of the Appendix A from Madras has, in many cases, found to be very inconvenient.

5. Next as regards to the objections taken to rendering the form. These objections may be taken up point by point.

I.—Difficulty occasioned by Ranges in Madras, corresponding with divisions in other parts of India.

The Controller mentions that to this circumstance is due the incompleteness of the statement submitted by him. He adds as follows:—

"This office can certainly distribute the entire establishment according to Ranges, but it cannot tell how much of the funds granted or intended to be granted for each District will be allotted to each Range within the District."

Admitting this difficulty, then the obvious course to follow is to show the cost of establishment of each Range, and to show the grant for works and repairs for the District. But why cannot the grant for works and repairs for each Range be shown? The Budget shows the locality in which each work for which there is a grant is situated. The locality indicates the Range. And the aggregate of the grants for the localities in a Range is the grant for the Range.

Besides this the Controller must get the information together, or how is he to issue credit orders.

II.—Difficulty of distributing the cost of establishment of each District over the several funds, Imperial, Provincial, &c.

On this point the Controller says that the establishment charges are not distributed according to a uniform percentage under existing orders; and the distribution determined at the close of the year could not be assumed at the time of preparing the Budget with any better result than of filling up space by entering amounts which would serve no useful purpose.

But no information is wanted to show how the cost of establishment of each division is apportioned off to the several funds concerned. It is true that the pattern form contemplated that in Provinces where the establishment was divided off (as in Burmah division by division, one to Provincial and the other to Imperial) that there should be one appendix to accompany the *Imperial* Budget Estimate and another the *Provincial* Budget Estimate, and that in cases where the Irrigation Establishment was divided off, the like course should be followed. But in Madras where this has not been done, the obvious course to follow is, to submit only one appendix for the whole of the establishment, no apportionment being made of its cost between the several funds, except in the case of extraordinary establishment, in which, unless the debit to extraordinary is made by a percentage, the items making up the probable charge should be shown distinctly.

III.—Difficulty in filling in the grants for works from Local Funds.

This is the real difficulty in the preparation of the appendix, but it is a difficulty easily overcome.

The Controller says that the allotment of Local Funds is not known when the Budgets of the Presidency are due to the Government of India, and even at this late date the Local Fund Circle Budgets have not come to hand.

But it can, and should be arranged, that the Circle Budgets of Local Funds should come to hand soon. The time for the submission of the Imperial Budget is the 1st January. The Local Fund Budgets are due on the 15th February. It is true that in most Provinces these Budgets cannot be got to hand on the date prescribed, and that they generally reach after April. But what is done in Bombay can be easily done in Madras. The Bombay Government with its Imperial Budget send the Appendix A with the column for Provincial or Local Fund outlay blank. With the Provincial and Local Fund Budget, they send the same appendix with the column

filled in. The necessities of the case are sufficiently met by this arrangement, and it is submitted that the Government of Madras should be advised to follow this course There is no more useful portions of the Budget Estimate for watching establishment charges than this Appendix A. Its advantage has been proved more than once.

From Captain L. CONWAY-GORDON, R.E., Controller of Public Works Accounts, to Lieutenant-Colonel J. McLEOD-INNES, Accountant-General, Public Works Department, dated Fort St. George, 10th August 1875, No. 29 A.

I HAVE the honor to acknowledge the receipt of your letter, No. 1,307 G, dated 9th June 1875, and in reply to inform you that I foresee no difficulty in preparing, within one week of receiving a copy of the Local Fund Budget, the form Appendix A of the Budget, provided that this appendix is drawn up on the following basis:—

(*a.*) That the expenditure on establishment is compared with the expenditure on works by Districts and not by Ranges.

(*b.*) That sums reserved by Government, Chief Engineer, &c., &c., for unforeseen requirements and the incidence of which even by Districts is not known at the time the Budget is drawn out, be divided off between the Districts by the Controller in the best practicable manner.

2. The date on which this Appendix A can be furnished is, it will be seen, entirely dependent on the date on which a copy of the Local Fund Budget is furnished the Controller by Government. As at present the Madras Government does not supply me with a copy of the Local Fund Budgets, I am unable to say with any certainty from past experience when I may expect to receive a copy of the Local Fund Budget. No exertions will, however, be wanting on my part to induce Government to supply me with a proof copy of the Budget immediately it is prepared, and to supply Appendix A immediately afterwards.

3. On receipt of your reply to this letter, I will address the Madras Government accordingly.

From Lieutenant-Colonel J. McLEOD-INNES, Accountant-General, Public Works Department, to Captain L. CONWAY-GORDON, R.E., Controller of Public Works Accounts, Madras, dated Simla, 8th September 1875, No. 2,101 G.

I HAVE the honor to acknowledge receipt of your letter, No. 29 A, of the 10th ultimo, explaining that you do not foresee any difficulty in preparing Appendix A of the Budget Estimate if the Local Fund Budget Estimate is sent you, and if the entries relating to grants for works may be exhibited by Districts instead of by Ranges, and the grant for minor works may be divided off by Districts in the best practicable manner.

2. In reply, I have to state that I see no objections to these groupings by Districts, provided that the distribution by Districts of the grant for minor works is shown as a separate column. The necessary communication to the Government of Madras, in order to admit of your proposals being carried out, should be made soon.

3. With reference to your remark A, I would be glad to know your reason for proposing to show the grants by Districts when the Range, as I understand, continues to be the unit for rendering accounts.

No. 43. ORDER THEREON, 3rd November 1875, No. 3,107.

ACCOUNT, No. 3.

HIS EXCELLENCY the Governor in Council directs that steps be taken for the compilation of Appendix A to the Budget of 1876-77 in the form required. This can be done without difficulty as regards all

works, except roads, and perhaps some few Irrigation Canals, the work of which may spread over more than one Range. The subject will accordingly be attended to without delay by the Board of Revenue and the Chief Engineer for Irrigation in the preparation of the details of the Local Fund and Irrigation Budgets. The attention of the Financial Department is specially called to the last section of the Accountant-General's note referring to the preparation of the Local Fund Budget. The distribution by Ranges of grants for Minor New Works or Repairs, at present held at the disposal of District Engineers, the Chief Engineer, or Government, will be understood to be made as an estimate of outlay for the year, the actual sums continuing to be distributed to District and Range Officers as at present.

2. District Engineers will draw up the details of future Budgets in strict conformity with these orders.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 44. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 1st November 1875, No. 589 :—

WITH reference to the Proceedings of Government, under date 20th October 1875, No. 2,980, I have the honor to forward, for transmission to the Government of India, an estimate, in the prescribed form, of the transactions of the Railways in this Presidency during the current official year, together with a Memorandum* by the Examiner of Railway Accounts.

* No. 1,138, dated 30th October 1875.

2. The excess under "Stores" referred to in paragraph 3 is due to the large Revenue expenditure in restoring the damaged bridges on the Madras Railway. As stated in paragraph 5, allowance has been made in the estimated receipts for an increase of one lakh from traffic in connection with the visit of His Royal Highness the Prince of Wales, and this will probably be fully realized.

3. The figures for the South Indian Railway are, it is thought, as good approximations as can at present be made. The line between Madura and Tuticorin is now being pushed rapidly towards completion, and the expenditure being incurred must be considerably in excess of the average for the past months.

No. 1,138.

MEMORANDUM.

IN reply to Consulting Engineer's Office Memorandum, No. 1,468, dated 25th instant, begs to submit an estimate of the financial operations of the Guaranteed Railways in this Presidency with the Government Treasury during the year 1875-76 in the form prescribed by Government of India letter, No. 296 A.—G.R., dated 9th instant. This estimate is required to reach the Government of India at Calcutta, without fail, on the 8th proximo.

2. The Budget Estimate figures are entered at the foot of the schedules. The principal causes of the divergence from the Budget figures in the present estimate are as follow :—

MADRAS RAILWAY.

3. *Capital Withdrawals.*—The purchases of stores are likely to be much in excess of the Budget allotment, and the expenditure on construction works in progress will also probably exceed the grant under that head.

4. *Capital Payments.*—The excess outlay upon stores will, it is expected, all return to Capital Account as refunds by Revenue.

5. *Revenue Payments and Withdrawals.*—The anticipation of a considerable improvement upon the Budget Estimate figures for earnings appears to be fully justified by the actual receipts of the expired portion of the year, and one lakh of Rupees has been included on account of the increase to traffic expected to accrue from the Prince of Wales' visit. The expenses will, however, be largely increased by the re-construction of bridges, &c.

6. *Special Funds.*—The arrangement by which the Company's Special Funds' moneys are lodged in the treasury came into force in March last (*vide* G. O., No. 2,242, dated 4th August 1875), and the payments and withdrawals were not estimated for.

7. *Interest on Revenue Balances.*—This item has hitherto been included with the rest of the traffic receipts in the payments to treasury on Revenue Account.

SOUTH INDIAN RAILWAY.

8. *Capital Withdrawals.*—The revised Budget Estimate of thirty-six lakhs will not be worked up to. It is even doubtful whether the sum of thirty-two and-a-half lakhs entered in this estimate will be all expended ; but provision is allowed for the extra exertions now being made to push sections of the lines to completion.

9. *Capital Payments.*—The refunds to Capital by Revenue are less than was anticipated owing to the delay in opening new sections of line, which diminishes the stores used in working and consequently the refunds to Capital.

10. *Revenue Payments and Withdrawals.*—The divergence under these heads is due to the delay in opening new sections of lines.

11. Regrets that it has not been possible to enter the estimated figures as required in blue ink owing to there being none in this office ; they are shown in red ink.

MADRAS, (Signed) R. G. MACDONALD,
30th October 1875. *Examiner of Railway Accounts.*

Estimated Payments into Treasury by the Madras Railway during 1875-76.

Month.	Capital.			Revenue.			Special Funds.			Interest on Revenue Balances.			Grand Total.
	Cash.	Transfers.	Total.	Cash.	Transfers.	Total.	Cash.	Trans-fers.	Total.	Cash.	Transfers.	Total.	
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
April 1875 ...	22,227	1,31,825	1,54,052	5,55,312	30,368	5,85,680	14,984	...	14,984	...	...	...	7,54,716
May „ ...	3,993	1,56,631	1,60,624	5,68,950	13,895	5,82,845	17,599	...	17,599	...	...	...	7,61,068
June „ ...	8,850	2,07,292	2,16,142	5,85,866	34,369	6,20,235	8,814	356	9,170	...	7,473	7,473	8,53,020
July „ ...	3,737	1,46,905	1,50,642	5,93,385	11,848	6,05,233	22,163	...	22,163	...	...	...	7,78,038
Aug. „ ...	5,567	1,45,175	1,50,742	5,38,066	13,390	5,51,456	17,113	...	17,113	...	...	...	7,19,311
Sept. „ ...	5,725	1,45,421	1,51,146	4,68,982	13,008	4,81,990	11,423	...	11,423	...	...	...	6,44,559
Oct. „ ...	5,073	1,50,000	1,55,073	5,50,000	13,000	5,63,000	20,000	...	20,000	...	...	...	7,38,073
Nov. „ ...	5,000	1,49,070	1,54,070	5,50,000	13,000	5,63,000	42,000	...	42,000	...	...	...	7,59,070
Dec. „ ...	5,000	1,61,000	1,66,000	5,90,000	20,000	6,10,000	16,000	1,144	17,144	...	8,527	8,527	8,01,671
Jan. 1876 ...	5,000	1,52,000	1,57,000	5,50,000	13,000	5,63,000	92,000	...	92,000	...	...	...	8,12,000
Feb. „ ...	5,000	1,52,069	1,57,069	5,50,000	13,000	5,63,000	49,000	...	49,000	...	...	...	7,69,069
Mar. „ ...	4,828	1,52,612	1,57,440	5,49,439	11,122	5,60,561	28,904	...	28,904	...	...	...	7,46,905
Total ...	80,000	18,50,000	19,30,000	66,50,000	2,00,000	68,50,000	3,40,000	1,500	3,41,500	...	16,000	16,000	91,37,500
Budget Estimate	...	...	17,00,000	...	...	63,25,000	...	...	...	..	...	...	80,25,000
Excess... ...	...	...	2,30,000	...	...	5,25,000	...	...	3,41,500	...	...	16,000	11,12,500
Short	...	...	...	...	...	...	...	...	...	...	...	...	...

(Signed) R. G. MACDONALD,
Examiner of Railway Accounts.

MADRAS,
30*th October* 1875.

Estimated Withdrawals from Treasury by the Madras Railway during 1875-76.

Month.	Capital.			Revenue.			Special Funds.			Interest on Revenue Balances.			Grand Total.
	Cash.	Transfers.	Total.	Cash.	Transfers.	Total.	Cash.	Transfers.	Total.	Cash.	Transfers.	Total.	
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
April 1875 ...	1,00,000	...	1,00,000	1,80,000	1,49,462	1,29,462	3,167	...	3,167	...	...	...	4,32,629
May ,, ...	1,30,000	876	1,30,876	2,00,000	1,85,966	3,85,966	9,913	...	9,913	...	...	...	5,26,755
June ,, ...	1,50,000	1,401	1,51,401	2,00,000	2,30,380	4,30,380	3,476	...	3,476	...	...	...	5,85,257
July ,, ...	1,50,000	...	1,50,000	2,00,000	1,69,414	3,69,414	16,848	...	16,848	...	...	...	5,36,262
Aug. ,, ...	1,50,000	...	1,50,000	2,00,000	1,61,360	3,61,360	2,266	...	2,266	...	...	...	5,13,626
Sept. ,, ...	1,00,000	...	1,00,000	2,50,000	1,65,000	4,15,000	17,010	...	17,010	...	...	...	5,32,010
Oct. ,, ...	1,00,000	...	1,00,000	2,00,000	1,63,900	3,63,900	16,000	...	16,000	...	...	...	4,79,900
Nov. ,, ...	1,35,000	200	1,35,200	2,30,000	1,63,906	3,93,906	26,000	...	26,000	...	...	...	5,55,106
Dec. ,, ...	1,35,000	200	1,35,200	2,30,000	2,45,851	4,75,851	16,320	...	16,320	...	...	...	6,27,371
Jan. 1876 ...	1,65,000	200	1,65,200	2,20,000	1,63,900	3,83,900	56,000	...	56,000	...	...	...	6,05,100
Feb. ,, ...	90,750	200	90,950	1,70,000	1,63,909	3,33,909	36,000	...	36,000	...	...	...	4,60,859
Mar. ,, ...	90,750	423	91,173	1,50,000	81,952	2,31,952	6,000	...	6,000	...	...	...	3,29,125
Total ...	14,96,500	3,500	15,00,000	24,30,000	20,45,000	44,75,000	2,09,000	...	2,09,000	...	...	...	61,84,000
Budget Estimate	...	...	12,00,000	...	...	40,75,000	...	...	...	...	...	...	52,75,000
Excess... ...	...	...	3,00,000	...	...	4,00,000	...	...	2,09,000	...	...	...	9,09,000
Short	...	...	...	...	...	...	...	...	...	...	...	...	...

There are no payments made in India on account of guaranteed interest to the Madras Railway Company.

(Signed) R. G. MACDONALD,
Examiner of Railway Accounts.

MADRAS,
30th October 1875.

Estimated Payments into Treasury by the South Indian Railway during 1875-76.

Month.	Capital.			Revenue.			Special Funds.			Interest on Revenue Balances.			Grand Total.
	Cash.	Transfers.	Total.	Cash.	Transfers.	Total.	Cash.	Transfers.	Total.	Cash.	Transfers.	Total.	
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
April 1875 ...	2,958	13,490	16,448	84,727	2	84,729	...	...	...	...	...	...	1,01,177
May " ...	2,610	14,375	16,985	99,002	3	99,005	...	...	...	...	...	...	1,15,990
June " ...	1,813	15,143	16,956	88,732	387	89,119	...	...	...	...	1,883	1,883	1,07,958
July " ...	824	17,300	18,124	93,802	67	93,869	...	...	...	...	...	...	1,11,993
Aug. " ...	1,046	17,000	18,046	99,308	67	99,375	...	...	...	...	...	...	1,17,421
Sept. " ...	4,768	22,000	26,768	1,00,686	67	1,00,753	...	...	...	...	...	...	1,27,521
Oct. " ...	2,331	28,782	31,113	1,00,000	67	1,00,067	...	...	...	...	...	...	1,31,180
Nov. " ...	2,330	28,782	31,112	1,26,549	68	1,26,617	...	...	...	...	...	...	1,57,729
Dec. " ...	2,330	28,782	31,112	1,26,549	68	1,26,617	...	...	...	...	1,917	1,917	1,59,646
Jan. 1876 ...	2,330	28,782	31,112	1,26,549	68	1,26,617	...	...	...	...	...	...	1,57,729
Feb. " ...	2,330	28,782	31,112	1,26,548	68	1,26,616	...	...	...	...	...	...	1,57,728
March " ...	2,330	28,782	31,112	1,26,548	68	1,26,616	...	...	...	...	...	...	1,57,728
Total ...	28,000	2,72,000	3,00,000	12,99,000	1,000	13,00,000	...	...	...	...	3,800	3,800	16,03,800
Budget Estimate	...	...	4,30,000	...	...	18,00,000	...	...	...	...	...	...	22,30,000
Excess ...	...	...	...	...	...	...	...	...	...	...	...	3,800	...
Short ...	...	...	1,30,000	...	...	5,00,000	...	...	...	...	...	...	6,26,200

Madras,
30*th October* 1875.

(Signed) R. G. MACDONALD,
Examiner of Railway Accounts.

Estimated Withdrawals from Treasury by the South Indian Railway during 1875-76.

Month.	Capital.			Revenue.			Special Funds.			Interest on Revenue Balances.			Grand Total.
	Cash.	Transfers.	Total.	Cash.	Transfers.	Total.	Cash.	Transfers.	Total.	Cash.	Transfers.	Total.	
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
April 1875 ...	2,68,043	85	2,68,128	30,000	30,682	60,682	...	...	...	...	...	...	3,28,810
May " ...	2,76,454	1,483	2,77,937	25,402	25,411	50,813	...	...	...	...	...	...	3,28,750
June " ...	3,17,823	1,996	3,19,819	20,000	46,926	66,926	...	...	...	...	...	...	3,86,745
July " ...	2,64,623	318	2,64,941	15,000	28,563	43,563	...	...	...	...	...	...	3,08,504
Aug. " ...	2,41,303	175	2,41,478	22,500	30,000	52,500	...	...	...	...	...	...	2,93,978
Sept. " ...	2,58,492	750	2,59,242	25,000	35,000	60,000	...	...	...	...	...	...	3,19,242
Oct. " ...	1,49,000	366	1,49,366	25,000	35,570	60,570	...	...	...	...	...	...	2,09,936
Nov. " ...	2,50,000	366	2,50,366	25,000	35,570	60,570	...	...	...	...	...	...	3,10,936
Dec. " ...	3,04,316	366	3,04,682	25,525	35,570	61,095	...	...	...	...	...	...	3,65,777
Jan. 1876 ...	3,04,316	365	3,04,681	25,525	35,570	61,095	...	...	...	...	...	...	3,65,776
Feb. " ...	3,04,315	365	3,04,680	25,524	35,569	61,093	...	...	...	...	...	...	3,65,773
March " ...	3,04,315	365	3,04,680	25,524	35,569	61,093	...	...	...	...	...	...	3,65,773
Total ...	32,43,000	7,000	32,50,000	2,90,000	4,10,000	7,00,000	...	...	...	...	...	...	39,50,000
Budget Estimate	...	...	36,00,000	...	...	9,50,000	...	...	...	...	...	...	45,50,000
Excess ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Short ...	...	...	3,50,000	...	...	2,50,000	...	...	...	...	...	...	6,00,000

There are no payments made in India on account of guaranteed interest to the South Indian Railway Company.

(Signed) R. G. MACDONALD,
Examiner of Railway Accounts.

Madras,
30th October 1875.

No. 45. ORDER THEREON, 3rd November 1875, No. 3,108.

RAILWAY, No. 6.

ORDERED to be forwarded to the Government of India.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 46. (DOCKET No. 3,109, dated 3rd November 1875.)

COPY of the above forwarded to the Government of India with reference to their letter, No. 296 A.—G.R., dated 9th October 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 47. Read the following letter from Colonel H. DRUMMOND, R.E., Deputy Secretary to the Government of India, Public Works Department, (Railway,) to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department, (Railway,) dated Simla, 21st October 1875, No. 2,622 R. :—

I AM directed to acknowledge the receipt of your No. 2,455, dated the 27th August 1875, forwarding papers relative to the reduction of the establishments on the Madras Railway, and in reply to request the submission of a statement showing how the present staff of seventeen Engineers is employed, the length of line assigned to each, and the number of Inspectors employed in each district.

2. The Government of India approve of an increase to Mr. Going's salary from £1,150 to £1,400 per annum as a special case.

3. With reference to the question of amalgamating the offices of the Chief Auditor and Chief Accountant, I am to state that the Government of India are of opinion that the two offices may be placed under the sole charge of the Chief Auditor, the designation of the Chief Accountant being changed to Deputy Auditor.

4. I am also to request that the Agent may be asked to place himself in communication with his Board as to the desirability of retaining a Storekeeper on his present high salary, when, in his opinion, an officer on a much lower pay can perform the same work, and to add that, as the services of many of the Engineers are generally dispensed with on the completion of a Railway, it seems undesirable that a highly paid Storekeeper should be kept on when his services are no longer required.

No. 48. ORDER THEREON, 3rd November 1875, No. 3,110.

RAILWAY, No. 7.

COMMUNICATED to the Consulting Engineer for Railways with reference to the undermentioned orders :—

G.O., No. 1,111, dated 20th April 1875.
,, ,, 1,253, ,, 4th May ,,
,, ,, 2,454, ,, 27th August ,,

The statement called for in paragraph 1 should be submitted, and the arrangement referred to in paragraph 3 carried into effect as early as practicable.

2. The question of the retention of a Storekeeper on his present high rate of salary, noticed in paragraph 4, should be considered by the Agent in communication with his Board of Directors, and the result reported.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 49. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 1st November 1875, No. 591 :—

ADVERTING to paragraph 2 of this office letter, No. 561, dated 13th October 1875, in which it was stated, with regard to Form C for the through booking of small numbers of troops or Government passengers, that the Controller of Military Accounts was of opinion that some additional columns are necessary to show the proportionate payments to each Railway, and that all objections should be dealt with by the Traffic Manager of the line on which the booking takes place, I have the honor now to submit two letters* from the Agents of the Madras and the South Indian Railways, giving their views on this point.

* No. 1,072, dated 14th October 1875.
,, 942, ,, 29th ,, ,,

2. It will be seen that the Agents of both Railways agree that the additional columns proposed by the Commissariat Examiner are unnecessary. It is also explained that it is the rule for the Company that books, and to which the warrant is presented, to be responsible to the customer for the settlement of all claims.

From R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Madras, 14th October 1875, No. 1,072.

IN reply to your letter of the 7th instant, No. 1,095, I have the honor to inform you that as far as this Company is concerned there is no objection to effect being given to the suggestion made by the Examiner of Commissariat Accounts.

2. It is not apparent however with what object the proposal is made, as the Company to which the warrant is presented would issue a through ticket, and would have to clear the fare in the usual way through the weekly returns of through traffic, and the columns which it is suggested should appear on the warrant would not be of any assistance to the Company issuing the ticket.

3. If the object is to afford the Examiner the means of checking the charges, I think the simplest way would be to furnish him with a list of the rates of the different Railway Companies.

From D. LOGAN, Esq., Acting Agent of the South Indian Railway, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Trichinopoly, 29th October 1875, No. 942.

In acknowledging receipt of your No. 678, of the 7th instant, I have the honor to inform you that the additions to Military Warrant Form C, proposed by the Examiner of Commissariat Accounts, are not required for the "purpose of audit and final adjustment" so far as the Railway Companies are concerned. The practice on this line is not to allow any division of charges on foreign traffic to be made by Station Masters, who are supplied with through rates; but if this information is required by the Military Department, it can of course be given on the warrant before being presented for payment.

2. With reference to the second paragraph of Colonel Rideout's letter, the contracting Company, *i.e.*, that which books, is both by custom and by law responsible to the customer for the settlement of all claims.

No. 50. Order thereon, 3rd November 1875, No. 3,111.

RAILWAY, No. 8.

Ordered that these papers be forwarded to the Government of India in continuation of previous correspondence.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 51. (Docket No. 3,112, dated 3rd November 1875.)

Copy of the above forwarded to the Government of India, in continuation of letter No. 3,075, dated 29th October 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 52. Read the following letter from Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 29th October 1875, No. 40 :—

1 Statement of Expenditure for June 1875.

In continuation of my letter, No. 36, of the 21st August 1875, I have the honor to forward, herewith, the statement of expenditure on account of the operations

of the Madras Irrigation and Canal Company for June 1875 in comparison with the Budget allotment.

Statement of Expenditure on account of the Operations of the Madras Irrigation and Canal Company during the Month of June 1875.

Description of Charges.	Budget Allotment.	Expenditure. Up to the end of last Month.	In this Month June 1875.	Total.	Remainder of Allotment.	Remarks.
	RS.	RS.	RS.	RS.	RS.	
From State Expenditure.						
Establishment of the Chief Engineer for Irrigation for the control of the operations of the Madras Irrigation and Canal Company.	6,508	933	*495	1,428	5,080	*Office pay for May 1875 ... RS. 384 A. 0 P. 0; Do. contingencies for do. 110 9 3; Total ... 494 9 3
Purchase money of land. Kurnool ...	3,000	16	13	29	2,971	
Purchase money of land. Cuddapah.	1,500	...	...	...	1,500	
Total ...	11,008	949	508	1,457	9,551	
From Loan Capital.						
Establishment and office contingencies.	...	88	750	838	55,812	
Construction (Original Works) ...	59,820	190	2,258	2,448		
Plant and Stores		714	8	722		
Total ...	59,820	†992	3,016	4,008	55,812	† These are correct figures.
Revenue Account.						
Proportion of share or charges for general management including office contingencies.	45,728	5,717	3,878	9,595	36,133	
Conservancy staff do. stationery.	87,200	14,832	5,995	20,827	66,373	
Maintenance and repairs... ...	67,650	10,733	17,432	28,165	39,485	
Total ...	200,578	† 31,282	27,305	58,587	141,991	
Grand Total ...	271,406	33,223	30,829	64,052	207,354	

29*th October* 1875.

(Signed) A. DEC. SCOTT, Major, R.E.,
for *Chief Engineer for Irrigation.*

No. 53. ORDER THEREON, 3rd November 1875, No. 3,113.

IRRIGATION, No. 2.

ORDERED to be recorded.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 54. Read the following letter from T. D. HARRIS, Esq., Officiating District Engineer, Malabar, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Calicut, 13th October 1875, No. 103 :—

IN obedience to your No. 47, dated 8th ultimo, I have the honor to forward a copy of letter, No. 229, dated 6th instant, from the Assistant Engineer in charge of the

Cannanore Range, showing cause why the allotment of each year for erecting the quarters for the Superintendent of Jail at Cannanore was not fully utilized.

2. I fully agree in what Lieutenant Dobson states; the work was entirely in the hands of the Superintendent of Jail, as per G.O., No. 1,316, dated 1st October 1872,* Judicial Department, and we had only to furnish professional aid; I do not therefore think that the Department of Public Works at Cannanore is in any way to be blamed in not utilizing the allotment; on the contrary, the greatest assistance has been rendered by this department, and I have myself constantly visited the work, and have given detailed plan for stairs, portico, &c., which was omitted from the plans originally. I would strongly urge the completion of this building, as it will be when completed a valuable public property, and I would strongly recommend, in the interest of State and people, that all such works should be carried out under the direct supervision of a professional department, when there is one to be availed of. I trust the funds may be supplied, and that I may see this building completed before the setting in of next monsoon.

* Public Works Department G.O., No. 121, dated 22nd October 1872.

From Lieutenant A. E. DOBSON, R.E., Assistant Engineer of Cannanore Range, Malabar, to T. D. HARRIS, Esq., Officiating District Engineer, Malabar, dated Cannanore, 6th October 1875, No. 229.

YOUR No. 230,* dated 24th September 1875, I have the honor to forward the following report.

* Enclosure herewith returned.

2. The work was intended originally to have been carried out entirely by the Jail Department, *viz.*, under the Superintendent of Central Jail, with a Supervisor* told off to be always present at the work; but as no Supervisor was available, a competent maistry was to be appointed.

* *Vide* G.O., No. 2,492, dated 11th October 1873.

3. Captain Bailey was then in charge of district and range, and his endorsement* on above Government Order recommended Mr. Menazes, Range Maistry, but the range was shorthanded at the time, there being no Overseer in Cherakal Taluq, and the Maistry had to take charge of taluq, and so I could not assist the Jail Superintendent at that moment. However I sent up Mr. Menazes, Range Maistry, on November 1st, 1873, and put him on special charge of the work; he unfortunately died,† having taken fever whilst on the work.

* No. 262, dated 17th October 1873.

† 20th December 1873.

4. As the work was to be carried out entirely by convicts, I did not like to go on with it without having some man constantly in charge, as I was professionally responsible for the work being properly done. I stopped work and reported it, and asked* that Sub-Overseer Rarichen might be given me.

* In letter No. 1,083, dated 5th January 1874.

5. He was appointed* on the 10th January 1874, and almost immediately afterwards the appointment was cancelled on the 21st January† 1874. The work thus having had to be stopped under unavoidable circumstances I addressed the District Engineer, *vide* letter No. 1,188, of 24th January 1874, to which I received a reply, No. 22 of 30th idem, ordering me to get a good *working mason.* This I did and set to work as fast as I could, and although I was up as often as I could be, still the building could not be pushed on as fast as free-labor building, all the labor employed being unskilled convict labor,

* District Engineer's letter, No. 7, dated 10th January 1874.

† District Engineer's letter, No 16.

and I could not make them work up to mason's tasks, as many of them were quite new hands at building, and had to be taught there for the first time.

6. As the work was to have been carried out entirely by Jail Department they made their own arrangements about getting materials, &c., and I only gave the Superintendent any professional advice he might require, or assisted him and instructed the convicts when necessary, but always was under the impression that the Jail Department were to spend the money as they wanted it.

7. The accounts of the work never passed through this office, and this office never knew what the rate of expenditure was, but supplied money to the Superintendent on requisition.

8. The work was much delayed through the timber contractor not bringing timber, but the Department of Public Works had nothing to say on the matter as the contractor was a jail contractor.

9. The work now is almost complete, except a small portion of roofing, which would have been done before the monsoon, except for the delay of this contractor.

10. As all the labor was supplied by the Superintendent, I did not feel myself justified in interfering about the progress of the work as long as the work was good, although I have often remarked that the progress was slow; but, as I said before, I could only give the Superintendent advice and assist him to the best of my ability when he required it. I have but little doubt that I could, if the work had been carried out by free labor under me, have completed the work easily in one year, as I have never since I have been here found any difficulty in spending a year's allotment and completing whatever I may have to do.

No. 55. ORDER THEREON, 3rd November 1875, No. 3,114.

CIVIL WORKS, No. 5.

THE Financial Department have been requested in G.O., No. 2,956, of 15th October 1875, to allot the sum required for completion of the Jail Superintendent's quarters at Cannanore from the Convict Labor Fund. Work of this kind will in future be carried out under instructions from Public Works Officers, the necessary convict labor under the control of the jail officials being placed at their disposal.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 56. Read the following Circular from the Government of India, Public Works Department, (Railway,) dated Simla, 23rd September 1875, No. 17 R.:—

Arrangements for the comfort and convenience of passengers on Railways.

Read again—

Public Works Department Circular, No. 11, Forests, dated 6th August 1864.
" " " " 13, Railway, " 27th " "
" " " " 17, " " 5th December 1865.
" " " " 22, " " 29th October 1866.
" " " " 11, " " 2nd July 1868.
" " " " 36, " " 10th November 1869.

To Government of Bengal, No. 108, Railway, dated 19th January 1871.

Public Works Department Circular, No. 6, Railway, dated 19th May 1871.
" " " " 16, " " 3rd June 1873.
" " Nos. 1,222-1,235, " " 16th July 1873.
From Punjab, No. 2,659, dated 9th July 1873.
" " " 3,359, " 3rd September 1873.

Read also—

Papers received unofficially from North-Western Provinces Government.
From North-Western Provinces, Nos. 323 R.C., and 15 R.C., dated 8th December 1873 and 5th January 1874.
From North-Western Provinces, No. 24 R., dated 30th January 1874.
From Chief Commissioner, Central Provinces, No. 1,527, dated 19th March 1874.
From Government of Bombay, No. 498, dated 10th April 1874.
From Chief Commissioner, Oudh, No. 505, dated 5th May 1874.
From Government of Bombay, No. 789, dated 8th June 1874.
From Government of Bengal, General Department, No. 2,398, dated 24th July 1874.

Resolution.—At various times suggestions have been made for giving greater conveniences to passengers by railway, and the Government of India readily acknowledge how much has been done in this way since railroads were first established in India, both spontaneously by Railway Companies, and in answer to suggestions from without. It is not, therefore, in a disappointed sense that attention is again invited to this subject, but simply in the belief that there are still points which require attention. And the opinions of many officers of Government, who are in good positions for ascertaining the feelings of the natives, corroborate this view.

2. Apart from the interest which the Supreme Government have in the general welfare of the community, and in the development of trade by increased facilities of intercourse and communication, they have also, as the guarantors of a high rate of dividend to the shareholders, by far the largest interest in the financial success of railways. And until lines earn more often than they now do the interest guaranteed, the Government will practically have to bear on those lines which do not pay 5 per cent. any increased expenditure which the provision of additional conveniences may cause.

3. It is obvious, therefore, that Government have a very strong reason for proposing nothing which is likely to be permanently disadvantageous to the profits of the railways. Measures, which at the outset cost money and seem unpromising are, often in the long run successful. In this view—any measure calculated to simplify the transport of goods, or make railway travelling more easy, is likely to make railways more largely used. Reduced rates and fares which, of course, have the same effect, might at first result in loss, but, if judiciously made, would probably increase receipts, while at the same time they would lead to extended intercourse among the inhabitants of, and interchange of goods between, districts remote from one another. As regards passenger receipts, they are derived chiefly from passengers in the lower classes. In 1873, the receipts were as follows:—

	RS.
From 1st-class	10,88,933
" 2nd "	12,47,086
" 3rd and 4th classes	1,87,31,158

which included intermediate, third and cooly or lowest class, sometimes called 4th.

4. The receipts from the first two classes were, therefore, but a small, and those of the lower classes, a very large, proportion of the whole. Moreover, while travellers by the lower classes contribute far more in the aggregate than the higher, they are, at present, less able to take care of themselves, and their wants are sometimes not understood. It is to the treatment of the native passengers, therefore, that the Government of India desire more specially to draw attention.

5. Their comforts and perhaps their strong prejudices are sometimes too little attended to. The Government of India do not, in saying this, desire to endorse complaints which are too often exaggerated and inaccurate, and not unfrequently unreasonable. Nor do they wish to be understood to sanction, in the slightest, the view that distinction of caste should confer any privileges in travelling, but simply that there are some reasonable improvements which might well be made.

6. For instance, on the Oudh and Rohilkhund Railway female ticket-collectors have been introduced to the satisfaction of the native community. It is not known how far this plan has been tried elsewhere, but it is clear that an arrangement, which has satisfactorily stood the test of experiment on one line, might be tried on others.

7. Other points to which attention seems needed are indicated below; some suggestions have been made on previous occasions, and some have, more or less, been adopted on the chief railways.

8. *Overcrowding of carriages.*—Though complaints on this score still appear in the Native Press, it is believed that they are rarely well founded. The best remedy in this, as in all such matters, is to let passengers know what they are entitled to, and thus encourage them to protect themselves; and this can be managed, in respect of overcrowding, by distinctly indicating by notices in the English and Vernacular, in and outside compartments, the number of people they are to hold. With this precaution on every line of railway, and careful instructions to the Companies' servants, cases of overcrowding should altogether disappear. Eventually, perhaps, science may succeed in cooling carriages in the hotter seasons, but for the present the true solution of the comfort of native passengers would appear to lie in an increased quantity of space, sufficient protection from the sun, and ample ventilation; and in this respect, much as the accommodation has been improved on some lines, upon others it falls short of what in the opinion of the Government of India ought to be given. The rule that, in the hot weather, the number of passengers per bench or compartment shall be reduced is a great step in the right direction. Such a rule has been adopted on some lines. The Government of India would desire to see it in force on all.

9. *Ill-treatment.*—Cases of ill-treatment are happily now rarely heard of, and the improvement which has taken place in this matter is a cause of gratification to the Government of India. But the Railway Companies should not cease to press upon their officers of all ranks the necessity for gentle and patient treatment of the native passengers from whom so large a portion of their earnings are derived.

10. *Uniforms for Railway servants.*—There are rules of some sort on this subject on all railways, but they appear often to be, either insufficient, or disregarded. Nevertheless the wearing of uniforms or some distinctive badge by railway officials is not in India unimportant; for it is manifestly desirable that passengers, and those interested in the conveyance of goods, should be able to readily distinguish all railway

servants, and thus know at once to whom they can refer. Nor should the uniforms or badges be confined to the lower officials, for if this is done, the object of the arrangement to some extent fails. It seems therefore to the Government of India that station masters should especially be easily recognizable by some ornament, badge or peculiarity of dress.

11. *Extra trains during fairs and festivals.*—Complaints have been made that sufficient arrangements are not made for meeting the extra traffic at the seasons of fairs and festivals. Neglect of this important traffic is of course a direct loss to the Companies, and it is not supposed that this is ever wilfully done. But the Government of India think that at such times, if at no others, special facilities might be given for the sale of tickets, either within or without the railway premises, and multiplication of ticket officers might also be often introduced at large stations with advantage. Ticket offices might also be open for a longer time before the departure of trains. These and similar measures would tend to obviate many of the discomforts which a bewildered crowd of natives have often to bear.

12. *Admission to waiting sheds.*—It is understood to be the rule, on some lines, that admission to waiting sheds is not allowed until within a short time of a train starting. But such a rule must often lead to hardship, as the majority of native travellers are ignorant, have little idea of the English hours of the day, and reach stations many hours before the train by which they are to travel is due. If deprived of shelter they would often, therefore, have to endure long, and perhaps severe, exposure to sun or rain.

13. *Vernacular Time and Fare Tables.*—Such tables are now, as a rule, posted at all Railway stations, and the rule should be made absolute in the case of all stations. Similar tables giving the mileage and fare from the chief terminal station to every station on the railway might, it would seem without much difficulty, be fixed in the interior of all 3rd and 4th class carriages. And if, in addition to this, a system of even money in fares were to be adopted it would be a great convenience.

14. *Halts.*—For obvious reasons, there must be halts of longer or shorter duration at certain stations. The complaint has, however, not been uncommon, that passengers of the lower classes cannot leave their carriages until some time after the arrival of the train, and that the object of the halt is thus frustrated. Nor do passengers always know where halts occur, or when they have reached the stations where there are halts. Any information on this head, printed in the vernacular, and exhibited in the lower class carriages, would be of great convenience to the passengers, and the doors of carriages should be unlocked immediately on arrival at stations.

15. *Checking tickets.*—A similar difficulty often arises from the time occupied in checking the tickets of the lower classes of passengers at changing stations; and when, as in India, no means have been adopted for checking tickets when the train is in motion, the promptest measures should clearly be taken for doing this as soon as it stops.

16. *Control and direction of crowds of native passengers.*—It is even still not an uncommon thing to see on a platform a crowd of native passengers knowing neither which way to go, nor what to do to find their train. And they are often equally ignorant as regards the locality of conveniences at stations. The Government of

India are quite aware how difficult it is for Railway Companies to control and direct such crowds; but the subject is one to which attention may usefully be invited.

17. *Refreshments at Stations.*—The most essential refreshment in India is certainly water, and Companies have done much in providing this at stations. At the principal stations they have also made arrangements for the sale of food to native passengers. Whether the system, often adopted, of exacting a payment for this privilege of selling sweetmeats and fruit on the platforms is not attended with disadvantage requires consideration. Complaints are still heard in respect of this matter, and if control could otherwise be exercised without any exaction of money, such an arrangement would probably be an improvement. It should also be considered whether suitable refreshment rooms cannot be provided for native passengers, for whom simple food is as much needed as for Europeans. It is not sufficient to say that for that class of native travellers the regular 1st and 2nd class refreshment rooms are available.

18. *Latrines and Urinaries at Stations.*—The necessity of providing them has been so fully recognized that there can be few places which are not now properly supplied.

19. *Cleanliness and Lighting.*—The want of cleanliness in stations is frequently a matter of report, though less so than formerly; but there is still room for improvement. Deficient lighting, especially of latrines and urinaries, is common even on much frequented lines of railway. The replacement of broken glasses being often neglected, with the result that though there may be saving in glasses, there is extravagance in oil, and imperfect lighting. Both are matters which should not be overlooked.

20. *Planting trees.*—One of the greatest recent improvements has been the planting of trees in the neighbourhood of stations. Had the advantage of this been perceived in the first instance, native passengers would in many instances have now had shade to sit in where they have none. The Government of India commend this subject to all railways. A vast improvement has also been made in the planting of creepers and shrubs at stations, at the expense of companies. Nor do the Government of India regard this beautification of stations as of importance chiefly to travellers. It must be a source of considerable pleasure to the companies' servants, and companies have, in the opinion of the Government of India, done wisely, in providing, at what is to them an insignificant expense, a simple means of enjoyment, and an incentive to pride in the stations under their servants charge.

21. *Locking of carriage doors.*—Some discussion has recently taken place on this subject, and it has been asserted that locking both doors is a protection to passengers. But in this view the Government of India cannot agree. One door, at most, should at any time be locked.

22. *Through booking.*—Is a convenience which makes railway travelling less irksome, and it might be extended to all classes and obtain more widely than at present, with obvious advantage.

23. *Forced breaks in a Journey.*—It has been for some time a question which class of train service is most appreciated by the native community. Whether, for instance, they really are alive to the advantage of rapid travelling, or whether they

prefer slow travelling, with long halts for the purpose of cooking their food, and so forth. On some lines the power of testing these preferences for one system or the other is absent, because native passengers are compelled to break their journeys whether they will or no, and in some cases to make a halt for the whole night. The Government of India would prefer to see arrangements which admit of some choice on the part of travellers, and believe that nothing would be lost to Railway Companies if this were done.

24. *Return tickets.*—The issue of return tickets to native passengers of the lower classes as an ordinary arrangement and on holidays is a convenience which the public would certainly appreciate. Objections have been made that this would open the door to fraud, &c., but these objections do not appear to the Government of India to be of great weight, and as a matter of fact the Railway Companies in the Bombay Presidency have tried the arrangement successfully.

25. *Reserved accommodation.*—Is a matter in which greater facilities might also perhaps be given to the passengers by the lower classes.

26. *Improvements in carriages.*—The improvements in carriages have been considerable since railways were first opened in India, and this is especially noticeable on the East Indian Railway, which has devoted great attention to the subject. In the first-class carriages there is little to be desired, and attention has recently been given to the improvement of the second. The lower classes, known as the intermediate and third-class, have also been much improved by giving to each passenger greater room than formerly, and by the introduction of sliding shutters. With the system of cross seats and compartments absolutely separated, it is not an easy matter to provide, for the lower classes, conveniences in trains for the offices of nature, and with the provision already made at stations the necessity is less than it otherwise would be. Still, if by some arrangement conveniences of this sort could be moderately given, there would be advantage. The Scinde, Punjab and Delhi Railway is about to try the plan. On the Rangoon and Irrawaddy Valley Railways on which it is proposed to adopt end entrances to the carriages, refreshment and latrine carriages may with advantage be introduced.

27. *Serais.*—The provision of serais is no part of the business of a Railway Company, but the existence of serais in the neighbourhood of stations is a manifest convenience. This is a question which properly belongs to the Civil administration and to private enterprise or munificence, and, probably, in no direction, could wealthy members of the community more usefully spend money, than in erecting serais near railways, which are now taking the place of the old lines of communication. Railway Companies have already gone far in providing waiting-sheds within their premises. For further accommodation beyond this the general community may fairly be looked to.

28. *Passengers' luggage.*—With regard to passengers of the higher classes, the point which seems to call for reform is the luggage rules. These appear to be needlessly restrictive. The circumstances of Indian travelling are so different from those of Europe, that rules, which would, in the latter case, be appropriate are, in India vexatious. For instance, on the East Indian Railway though a certain amount of free luggage is allowed, a saddle, a basket of fruit, a case of wine or stores, even though within the limit of weight allowed, are proscribed, and must be paid for extra. The rule about the saddle seems singularly out of place in a country when officers on tour ride, and

where an officer would often take the train to meet his horse which had been sent on. Nor do the other rules, which might be easily evaded, seem useful or necessary. The rate for luggage is higher than for any class of goods and a passenger's ticket must be purchased in order that luggage may be carried. It would seem therefore, so long as he carries nothing offensive or dangerous, that a passenger should be almost unrestricted as to the nature of his personal luggage. It would also probably be sound policy to allow native passengers to take a certain weight of baggage with them, no matter whether for sale or not, provided the articles are neither dangerous nor offensive.

29. *Native women.*—It is obvious that if native ladies are to travel by rail, special arrangements of some sort for their convenience must be made. The extent to which these should be carried, is the point upon which difficulty arises, but it is doubtful whether the question generally has been sufficiently considered by Railway Companies.

30. The essentials seem to be—private but not extensive waiting-rooms for that class known as *purdahnasheens*, and accommodation in serais also of a secluded sort. With regard to the means of private ingress and egress to and from trains, the remedy seems to be in the hands of the ladies themselves, by adopting for this purpose the costume commonly worn in Turkey and Egypt, where seclusion of their sex is as general as in India. It is clear that the Railway Companies cannot provide screens across platforms. All private waiting-rooms and also the carriages should be supplied with complete private accommodation; and there should be means by which water and food could be obtained without any intrusion upon the privacy which it is desired to maintain. How far all this could be done it is not possible to say. Whatever is to be done in connexion with serais concerns the Local Governments and Administrations. The other measures should be considered by the Railway authorities, and His Excellency the Governor-General in Council has every confidence that they will endeavour to provide as far as possible remedies for existing defects.

ORDER.—Ordered, that copies of this Resolution be forwarded to the Governments of Madras and Bombay, to the Chief Commissioners of the Central Provinces and British Burmah, to the Resident at Hyderabad, to the Director of State Railways and to the Consulting Engineers for Guaranteed Railways at Calcutta, Lahore, and Lucknow, for information and guidance.

Also to the Governments and Administration noted in the margin for information.

Bengal. | Punjab.
North-Western Provinces. | Chief Commissioner, Oudh.

Also to the Home Department for publication in the Supplement to the *Gazette of India*.

(Signed) C. H. DICKENS, Colonel, R.A.,
Secy. to the Govt. of India.

No. 57. ORDER THEREON, 3rd November 1875, No. 3,115.

RAILWAY, No. 9.

COMMUNICATED to the Consulting Engineer for Railways, who will request the Agents of the Railway Companies to submit such remarks as they may desire to make on the several points specified by

the Government of India. In connection with the question of refreshments at stations, native gentlemen might be communicated with as to the practicability of providing economically ordinary food for native travellers.

2. Collectors will be requested, in the Financial Department, to consider how far funds can be usefully employed from "Local" sources in providing chuttrums at Railway stations and planting topes in their vicinity. Existing endowments for chuttrums on lines of roads which are being superseded by railways may possibly be utilized wholly or in part for providing necessary accommodation and sinking wells elsewhere.

3. The standard plan of chuttrum might, in the opinion of His Excellency the Governor in Council, be modified with advantage in these places so as to allow ample and well ventilated cover with facilities for cooking and protection from thieves. The old native arrangement of a spacious quadrangle enclosed by lofty arcades with occasional sub-divisions would apparently be more suitable and less costly than the present design.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 58. Read the following Proceedings of the Madras Government in the Military Department, dated 7th September 1875, No. 4,328 :—

ABSTRACT.—Approving estimates for making certain alterations and additions to the four Staff Serjeants' quarters, Begum's compound, St. Thomas' Mount.

No. 59. ORDER THEREON, 3rd November 1875, No. 3,116.

MILITARY WORKS, No. 1.

THE District Engineer, Chingleput, will be called on to explain why he failed to include the necessary provision for out-houses in the estimate submitted by him, and sanctioned in G.O., No. 111, of the 14th January 1874.

2. It should also be explained by the District Engineer what precedent there is for not supplying a separate cook-house to each quarter, and why, on the other hand, a wash-house is proposed, it being understood that the usual arrangement is for the washing to be done inside the quarters.

3. Two separate latrines should be estimated for, the one for males and the other for females, to accommodate the four families.

4. The cost of each out-house should be detailed separately in the abstract estimate.

5. The plans and other documents are returned for revision.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 60. Read the following endorsement of the Consulting Engineer for Railways, dated Madras, 25th October 1875, No. 577 :—

From D. LOGAN, Esq., Acting Agent of the South Indian Railway, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Trichinopoly, 23rd October 1875, No. 927.

I HAVE to inform you that on the evening of the 20th instant the engine of No. 1 train broke away from its train while on the journey to Madura, between Sholavandan and Madura. This happened on the 171st mile, about 5 miles from Madura, on an incline of 1 in 250 ; the night was dark and wet. The train overtook and ran into the engine, and three covered goods wagons were considerably damaged in their draw bar and buffing and connecting apparatus. None of the passengers, among whom was the Rev. Mr. Chester of Dindigul, was injured so far as I can learn. Immediately on hearing, on the 21st instant, of the accident, I arranged to go down by special with the Locomotive Superintendent and the Traffic Manager to inquire into matters on the spot. The result of our inquiries made me strongly suspect that the driver had been guilty of negligence, while I was satisfied that he had acted with great want of judgment in bringing his engine to a stand, or, as he alleges, to nearly a stand, when he knew that he was on an incline and that the train must be following him.

2. I have felt it to be my duty to direct the criminal prosecution of the driver (Seyton) under Section 26 of Act XVIII. of 1854.

3. I have not yet received the written report of the accident from the Locomotive Superintendent, when I do a copy shall be forwarded.

4. Of the three trucks damaged the one next the engine was found without any bridle, and the bridle bolt hanging down by the chain attaching it to the buffer head. The leading ends of each of the two other vehicles had their bridles properly attached, A bridle was found on the line near the scene of the collision. It is at present supposed that the bridle-pin of the foremost truck had worked out, that the bridle fell off, and that some irregularity of the road then caused the engine hook to jerk out of its connection, and the engine ran away from the train.

5. I have requested the Locomotive Superintendent to report fully on these bridle catches, and to submit his views on what can be done to guard against their loss, and the consequent risk of such accidents as that now reported.

SUBMITTED for the information of Government.

2. Further particulars will follow.

(Signed) J. H. M. SHAW-STEWART, Lieut.-Col., R.E.,
Consulting Engineer for Railways.

No. 61. ORDER THEREON, 3rd November 1875, No. 3,117.

RAILWAY, No. 10.

RECORDED, pending the receipt of further particulars and report of the result of the prosecution instituted against the driver.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 62. Read the following letter from W. C. FURNIVALL, Esq., Under Secretary to the Government of India, Public Works Department (Railway), to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department (Railway), dated Simla, 23rd October 1875, No. 2,642 R. :—

IN continuation of Public Works Department No. 2,015 R., of 14th August 1875, and with reference to the enclosures of Madras Government letter, No. 1,467, dated the 26th May 1875, from which it is seen that Rupees 1,000 has been entered as the estimated cost of erecting metre gauge engines for the South Indian Railway, I am directed to forward copy of a communication from the Director of State Railways showing what the cost of similar work has been on the State Railways.

From the Director of State Railways, to the Government of India, Public Works Department, dated 13th September 1875, No. 2,412 A.

IN reply to your letter, No. 365 H.—S.R., dated 14th ultimo, inquiring what amounts have been paid at Calcutta, Bombay, and Agra, respectively, for the erection of metre gauge engines, I have the honor to forward a statement giving the information asked for.

Statement showing Prices paid in Calcutta, Bombay, and Agra, respectively, for the erection of Metre Gauge Locomotives.

By whom erected.	Class A.	Class B.		Class C.	Class D.	Class E.	Remarks.
		Nasmyths.	Dubs.				
	RS.	RS.	RS.	RS.	RS.	RS.	
In Rajpootana State Railway Workshops.	*53·33		73·33		*45·33		* The expenses have not been recorded separately.
Bombay, Baroda, and Central India Railway Company, Bombay.	Rupees 1,361 for seven engines, or an average of Rupees 194-6-10 each.						
East Indian Railway Company.	Rupees 2,011 for seven engines, or an average of Rupees 287-4-7 each.						This amount is believed to include loading up charges as well as erection.

No. 63. ORDER THEREON, 3rd November 1875, No. 3,118.

RAILWAY, No. 11.

COMMUNICATED to the Consulting Engineer for report in continuation of G. O., No. 2,469, dated 28th August 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following :—

No. 64. From the District Engineer, Madura, dated 14th October 1875, No. 2,890.

No. 65. ORDER THEREON, 3rd November 1875, No. 3,119.

IRRIGATION, No. 3.

THIS letter will be recorded with the remark that Lieutenant-Colonel Fischer has been already instructed* as to the way in which the irrigation under the Vigay and the irrigation works generally of the Madura district are to be dealt with, and he has been informed that the Government have neither the means nor the intention of providing at present for the investigation of new projects.

* By the Chief Engineer for Irrigation.
In Procs., Madras Govt., No. 2,005, 14th July 1875.
In Procs., Madras Govt., No. 2,568, 8th September 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 66. Read the following Proceedings of the Government of India, in the Public Works Department (Railway), dated Simla, 18th October 1875, No. 2,590—99 R :—

Accident near Kutnee on the Jubbulpore Line, East Indian Railway.

READ—

Letter No. 2,311, dated the 30th August 1875, from the Consulting Engineer to the Government of India for Guaranteed Railways, Calcutta.

OBSERVATIONS.—A serious accident occurred near the station of Kutnee on the Jubbulpore Line of the East Indian Railway on the night of the 14th August 1875, in which the loss of life and injuries consisted of eleven killed and thirteen injured. The derailment occurred when the train was running at a speed of over thirty miles an hour. All the evidence adduced at the official inquiry tends to prove that the accident was owing to the cow-catcher having been insecurely fastened to the engine. It is supposed to have slipped from its position and got foul of the engine wheels and thus caused the derailment.

RESOLUTION.—The Government of India, with a view to the prevention of a similar catastrophe in future, desire that due instructions be issued for the careful examination of the fastenings of the cow-catchers attached to all engines every time

they are permitted to leave the running sheds preparatory to being used upon the main line.

ORDER.—Ordered that this Resolution be communicated to the Consulting Engineer to the Government of India for Guaranteed Railways at Calcutta, with reference to his No. 2,311, of the 30th August 1875, and to the Consulting Engineers at Lahore and Lucknow, and to the Director of State Railways, for information and necessary action.

Also to the Governments of Madras and Bombay in the Public Works Department (Railway), to the Government of the North-Western Provinces, to Chief Commissioner, Central Provinces, to the Chief Commissioner, British Burmah, and to the Resident at Hyderabad, for information and issue of orders.

(Signed) H. DRUMMOND, Colonel, R.E.,
Deputy Secretary.

No. 67. ORDER THEREON, 4th November 1875, No. 3,120.

RAILWAY, No. 11-A.

COMMUNICATED to the Consulting Engineer who will call upon the Agents of the Madras Railways to take the precautions ordered by the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 68. Read the following Circular from the Government of India, Public Works Department (Railway), dated Simla, 19th October 1875, No. 22 R. :—

Investigation into Accidents on Indian State Railways.

OBSERVATIONS.—There are now about 700 miles of State Railways open for traffic, and this length will be added to from year to year. It is necessary therefore to provide for the manner in which investigations into serious accidents should be conducted in the most complete and efficient way.

2. On the Guaranteed Railways when any serious accident, such as a collision with or without injury to life or limb, the breaching of an embankment, or the failure of a bridge occurs, the Consulting Engineer inspects, investigates, and reports on behalf of Government. When an accident occurs, attended with fatal consequences, the Magistrate of the District, or an officer deputed by him, conducts the inquiry.

3. The investigations are thus conducted by officers of Government and not by the servants of the Company directly responsible for the safe working of the Railway in which the accident may have occurred. The same principle should obviously also be extended to the investigation of accidents on State Railways.

4. The Governor-General in Council is accordingly pleased to decide, as a provisional measure, that accidents on State Railways when open for public traffic shall be subject to investigation by the Consulting Engineers attached to the Guaranteed Railways in India. The Consulting Engineer for Guaranteed Railways, Calcutta, will be directed to inquire into any accidents that may occur on the Calcutta and South-Eastern Railway, the Nulhatee State Railway, and the Northern Bengal and Tirhoot State Railways. The Consulting Engineer for Guaranteed Railways at Lahore will perform similar duties on the Punjab, Northern and Indus Valley State Railways, and the Consulting Engineer for Guaranteed Railways, Lucknow, on the entire system of the Rajpootana State Railway from Delhi and Agra to Nusseerabad. On the Holkar, Neemuch, Wardha Valley, and Nizam State Railways the investigation of accidents will, with the concurrence of the Government of Bombay, be undertaken by the Consulting Engineer for Guaranteed Railways at Bombay.

5. In regard to the Rangoon and Irrawaddy Valley State Railway, when opened for traffic, the Chief Commissioner should name some Engineer Officer of the Public Works Department under his orders unconnected with the Railway who may be best suited for the duty.

6. The Manager or Officer in charge of a State Railway should, in addition to the reports regarding accidents required to be made to the local civil authorities, promptly send information to the officers mentioned in this Resolution concerning accidents requiring investigation.

Order.—Ordered, that this Resolution be communicated to the Government of Bombay in the Public Works Department (Railway) for information, and the issue of the necessary orders to the Consulting Engineer; to the Chief Commissioner, British Burmah, for the purpose indicated in paragraph 5; to the Consulting Engineers to the Government of India for Guaranteed Railways at Calcutta, Lahore, and Lucknow, for information and guidance; and to the Director of State Railways for information and the issue of the necessary orders to the Managers of State Railways opened for public traffic.

Ordered also, that this Resolution be communicated to the Governments and Administrations noted on the margin for information. Also to the Home Department for information and publication in the Supplement to the *Gazette of India*.

Madras, Bengal, North-Western Provinces, Punjab, Central Provinces, Hyderabad, Central India, and Rajpootana.

(Signed) C. H. DICKENS, Colonel, R.A.,

Secretary to the Govt. of India.

No. 69. ORDER THEREON, 4th November 1875, No. 3,121.

RAILWAY, No. 11-B.

COMMUNICATED to the Consulting Engineer for Railways for information.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 70. Read the following letter from the Secretary to the Government of Bombay, Public Works Department, to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department, dated Bombay Castle, 25th October 1875, No. 526 E. :—

WITH reference to your No. 2,643, dated 13th September 1875, and previous correspondence, I am directed to forward to you a copy of a memorandum from the Superintendent of Kurrachee Harbour Works intimating that Mr. Bhimaya Saenna is willing to accept the employment offered him, but trusts that the usual sub-divisional allowance will be granted him. The letter is accompanied by lists of plant available for transfer from the Kurrachee Harbour Works, and the prices at which they are at present valued.

2. I am accordingly directed to request that the wishes of the Madras Government on the subject may be communicated to this Government, and to inquire whether Mr. Bhimaya Saenna should be directed to proceed to Madras at once, or whether he should be kept to pack any plant that may be required.

3. I am to add that Mr. Bhimaya Saenna has applied for three months' privilege leave, but that, pending the question of his transfer to Madras, it has not been sanctioned.

No. 787.

REPORTS with reference to Government memorandum, No. 457 E., of 23rd September 1875, that Mr. Bhimaya Saenna accepts the employment offered, and explains that the divisional allowance is the usual divisional allowance (Rupees 30 a month) sanctioned under Chapter I., Section I., paragraph 19 of Government of India's Public Works Code.

2. Mr. Bhimaya Saenna hopes when this is understood that he will be allowed to draw a similar allowance in his new appointment under the sanction of the Superintending Engineer or other supervising authority at Madras.

3. The plant mentioned is available and the prices entered in the attached list (No. 1) are considered to be such as would be fair to both parties to the transfer. Another list (No. 2) of plant not mentioned in Mr. May's letter, but which could be made available for transfer if required, is also appended.

4. Mr. Bhimaya Saenna awaits further orders and instructions.

MANORA, (Signed) J. HART, M.I.C.E.,
13th October 1875. *Acting Superintendent, Kurrachee Harbour Works.*

LIST No. 1.

Kurrachee Harbour Works.

List of Plant and Tools available for transfer to Madras Harbour Works.

Names of Articles.	Number or Quantity.	Value.	Remarks.
		RS.	
Titan	1	15,000	
Goliah	1	5,000	
Block Trucks	10	8,000	
Crane Chains	10 tons.	1,000	
Sling „	3 „	400	
Jacks, lifting of 2, 4, 8, and 10 tons	4	200	
Platform Trucks	14	1,800	
Earth Railway Wagons	20	3,500	
Large Stone Wagons	80	20,000	
Ten-ton Derrick Cranes, fixed jibs	2	3,000	There are three Derrick cranes with moveable jibs available for transfer; these are shown in No. 2 list.
Crane, Portable, 8 tons	1	1,200	
Pile Engines	2	500	
Ringing Engines	3	100	
Travellers, 50 feet	3	6,000	
Total ...	...	65,700	

LIST No. 2.

Kurrachee Harbour Works.

List of Plant and Tools available for transfer to Madras Harbour Works.

Names of Articles.	Number or Quantity.	Value.	Remarks.
		RS.	
Boring Apparatus	1	600	A 10 inch tool, used formerly for boring out stuff from hollow cast-iron piles of Napier mole bridge.
Cranes, Derrick, 10-ton moveable jibs ...	3	5,000	
Do., Wooden, Portable, 1 ton	3	1,200	
Shovels, round, crutch handles...	36	40	
Do., square	84	90	
Barrels, empty, for powder to hold 50 lbs. each.	80	600	
Do. do. 100 lbs. ...	3	40	
Blocking, Cast-iron	125	1,000	
Nippers, Iron, for lifting stone	5	70	
Pump, Gwynne's Centrifugal, B.B.	1	1,200	
Turn-tables, 16 feet diameter	2	3,000	
Engine, Locomotive, 20 H. P. with spare gear.	1	12,000	
Lewis moulds, cast-iron	8	500	
Lewises for lifting blocks	12	360	
Total ...	...	25,700	

Manora,
18*th October* 1875.

(Signed) J. HART, M.I.C.E.,
Acting Superintendent, Kurrachee Harbour Works.

No. 251.

FORWARDED for the early observations of the Superintendent of Madras Harbour Works (to be returned).

FORT ST. GEORGE, *2nd November* 1875. (Signed) G. W. WALKER, Major-General, R.E., *Secretary to Government, P.W.D.*

No. 70-A. From J. MAY, Esq., Superintendent of Madras Harbour Works, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 30th October 1875, No. 24 G.

G. O., No. 2,642, dated 13th September 1875.
Letter from Government of Bombay, No. 526 E, dated 25th October 1875.
Copy of report from Mr. J. Hart, No. 787, dated 13th October 1875.
List of Plant, No. 1.
Do. No. 2.

I HAVE the honor to enclose five papers (noted in the margin) which I received from you this morning referring to the appointment of Mr. Bhimaya Saenna, of Kurrachee Harbour, and to certain plant and tools which are available there for transfer to these works. I have taken copies of these papers.

2. Since the date of the last correspondence on the available plant at Kurrachee, Mr. G. Lowe has been appointed by the Secretary of State to the Madras Harbour Works in the capacity of Foreman Mason; and, as he was employed in the same capacity at the Kurrachee Works down to their completion in the spring of last year, he is familiar with the plant which would be useful here.

3. I have this day with Mr. Lowe gone carefully over the items in Mr. Hart's enclosed statements Nos. 1 and 2, and we have selected the following eight articles which would be most useful here. The others are not worth the sending :—

List of Articles at Kurrachee proposed to be shipped for Madras Harbour.

	Values. RS.
1 Titan ...	15,000
10 Block Trucks ...	8,000
4 Lifting Jacks ...	200
36 Round Shovels ...	40
84 Square Shovels ...	90
5 Iron Nippers ...	70
2 Sixteen feet Turn-tables ...	3,000
12 Block Lewises ...	360
1 Locomotive Engine with spare gear ...	12,000
Total...	38,760

NOTE.—The locomotive need not be sent unless it is in good repair.

4. With reference to Mr. Bhimaya Saenna's appointment to the Madras Harbour, I reported on 19th July last "that his services will be required on the work as soon as he can conveniently arrive here."

P.S.—As you suggested yesterday, it might possibly be arranged for Mr. Saenna to proceed at once to Madras, and for another officer to ship the plant at Kurrachee.

No. 71. ORDER THEREON, 4th November 1875, No. 3,122.

ESTABLISHMENT, No. 7.

ORDERED that the following letter be sent.

(Signed) G. W. WALKER, Major-General, R.E., *Secretary to Government.*

No. 72. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Government of Bombay, P.W.D., dated 4th November 1875, No. 3,123.

ESTABLISHMENT, No. 8.

SIR,—In reply to your letter, No. 526, of 25th October, I am directed to request that, as already desired in my letter, No. 2,121, of 24th July, Sub-Engineer Bhimaya Saenna may be instructed to proceed to Madras forthwith. The sub-divisional allowance to which he alludes has never been granted in this Presidency, and an exception cannot be made in his case.

2. Accompanying is a list of plant and tools which will be useful for the Madras Harbour Works, and the early despatch of which is requested. But it is not desired that Mr. Bhimaya Saenna should be detained to pack any of the articles.

No. 73. Read the following endorsement of the Consulting Engineer for Railways, dated Madras, 29th October 1875, No. 585 :—

MADRAS RAILWAY.

Report of fatal Accident on the 3rd Division, South-West Line, Section 2.

Collectorate.—Salem Zillah, Trichengode Taluq, Sunkerrydroog Division. *Railway District, Section and Mile.*—3rd Division, 2nd Section, South-West Line, between 220th mile, 8th and 9th telegraph post. *Between what two Stations and name of nearest Village.*—Between Sunkerrydroog and McDonald's Choultry Station, Athycarapolium village. *Whether at a level crossing or not.*—Nil. *Date of the Accident.*—20th October 1875, about 8 P.M. *Nature of Accident.*—Injuries received. A deep vertical cut on the forehead, a deep circular wound on the crown of the head and right arm elbow-joint fractured. *Circumstances which caused the Accident.*—Supposed to have been sleeping in a sitting posture near the rail at the time the 10·15 A.M. train was approaching, and received the above injuries. *Nature of assistance afforded.*—Died instantly, consequently no medical assistance afforded or required. *Name, age, caste, and occupation.*—Mootha Moodelly, age about 45 years, caste Weaver (Kikalan), No. 80 bridge special watchman at 220th mile, 3rd telegraph post. *Gratuity proposed to be given or not, and if so how much.*—Owing to his own indiscretion while on duty his family is not entitled to any gratuity. *Whether reported to the Police Authorities and verdict of inquest (if any).*—Reported to the Police authorities, verdict of Coroner's inquest, consisting of Munsif of Yerranapooram and Police Station Officer of McDonald's Choultry, &c., that the man met with his death from receiving two wounds on his head and fracture of his right hand elbow by the engine of the 10·15 A.M. train of the 20th instant, owing to his having been sitting too near the line of rails.

POTHANORE,
23rd October 1875.

(Signed) G. HARDINGE,
Resident Engineer

(„) B. ANDERSON,
Chief Engineer.

To the Consulting Engineer for Railways for information.

(Signed) J. W. MELLIS,
for *Agent and Manager*.

27th October 1875.

SUBMITTED for the information of Government.

2. The fatal accident to a watchman is supposed to have been due to his own indiscretion in sleeping near the line of rails while on duty. No action on the part of the Railway Company could prevent this.

(Signed) W. H. COAKER, Captain, R.E.,
for *Consg. Engineer for Railways.*

No. 74. ORDER THEREON, 4th November 1875, No. 3,124.

RAILWAY, No. 11-C.

RECORDED and communicated to the Judicial Department.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 75. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 29th October 1875, No. 583 :—

WITH reference to the Proceedings of Government, No. 173, dated 27th October 1875, I have the honor to state that the information asked for by the Government of India will be submitted in a few days. The Agents of both Railways in this Presidency have reported favourably of wood as a fuel, and the experience of the Locomotive Superintendents is to the effect that the burning of wood fuel has not proved injurious to the engine-tubes and fire-boxes.

2. Before submitting these reports, however, I am desirous to be satisfied on one or two points, regarding which I have applied for information, and on the receipt of a reply, which is expected daily, the subject shall be disposed of.

No. 76. ORDER THEREON, 4th November 1875, No. 3,125.

RAILWAY, No. 12.

COMMUNICATED to the Government of India pending receipt of fuller report.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 77. (DOCKET No. 3,126, dated 4th November 1875.)

COPY of the above forwarded to the Government of India with reference to letter No. 1,226 R., dated 15th May 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 78. Read the following letter from Lieutenant-Colonel R. F. OAKES, R.E., Superintending Engineer, Tanjore, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Tanjore, 27th October 1875, No. 2,046 :—

I HAVE the honor to state that Sub-Engineer Mooneappah Pillay, in charge of the Mannargoody Range in this district, submitted a bill for the conveyance of his office

records, during August and September last, amounting to Rupees 10-10-0, basing the claim upon G.O., No. 2,221, dated 12th August 1874, authorizing similar charges being passed to him while he was in charge of the Madura Range, in the Madura District. On referring the matter to the Controller of Public Works Accounts, that officer states that the Government Order referred to applies only to the Madura Range, and that similar claims of the Sub-Engineer in regard to the Mannargoody Range cannot be admitted without the special sanction of Government. I have the honor, therefore, to request the orders of Government on the subject. I would observe that, as in Madura, Mooneappah Pillay has charge not only of the range, but also of the sub-division of the Pattucottah Taluq, as no sub-division officer can be appointed to it on account of their being two vacancies among the sub-division officers, as reported in my No. 1,978, dated 14th instant. The range is a large one, covering an area of 1,245 square miles, and it is necessary for the Sub-Engineer to take his office with him especially when visiting the remote parts of the range; his claim therefore appears to deserve some consideration.

No. 79. ORDER THEREON, 4th November 1875, No. 3,127.

ESTABLISHMENT, No. 9.

THE special allowance granted to the Sub-Engineer when in Madura was never intended to be continued to him under any other circumstances, and must be disallowed.

(Signed) G. W. WALKER, Major-General, RE.,
Secretary to Government.

Read the following letters :—

No. 80. From Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 25th October 1875, No. 578.

WITH reference to the Proceedings of Government, No. 2,923, dated 13th October 1875, I have the honor to request that the application for gratuity to Apothecary Ramakistnah, recorded with the Order of Government, No. 2,529, dated 7th ultimo, may be submitted for the favorable consideration of the Government of India.

No. 81. From the same Officer, dated 29th October 1875, No. 582.

IN continuation of this office letter, No. 578, dated 25th instant, I have the honor to state that the gratuity applied for on behalf of Apothecary Ramakistnah will, if passed, be charged by the Madras Railway Company to Abstract E, 2nd (6) salaries, of the Revenue Account, being the same heading to which the salary of the applicant was debitable.

No. 82. ORDER THEREON, 4th November 1875, No. 3,128.

RAILWAY, No. 13.

ORDERED that the application be submitted for the sanction of the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 83. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Government of India, P.W.D., dated 4th November 1875, No. 3,129.

RAILWAY, No. 14.

* G. O., No. 945, dated 10th April 1875.
" " 2,529, " 7th Sept. "
" " 3,128, " 4th Nov. "

SIR,—I am directed to forward the accompanying papers* in respect to the grant of a gratuity of Rupees 510, equal to six months' salary, to Ramakistnah, late an Apothecary on the Madras Railway, and to request the sanction of the Government of India to the disbursement of the amount, the approval of the Board of Directors having been obtained.

2. The sum will be charged to Abstract E, 2nd (6) salaries, of the Revenue Account.

No. 84. Read the following letter from Lieutenant-Colonel J. F. FISCHER, R.E., District Engineer, Madura, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madura, 29th October 1875, No. 3,056 :—

I HAVE the honor to bring to the notice of Government that, in consequence of the old Protestant Church at Madura having been removed and a new church is now being erected in its place, the whole of the European Congregation at this station are now attending the American Mission Church, which has been lent for use until the new church is completed.

2. As the church belonging to the Mission is in need of some trifling repairs in the way of cleaning, &c., I request that Government will be pleased to sanction a sum of Rupees 50 for that purpose, and to debit the same to the current year's allotment of Rupees 3,000 for Repairs, Civil Buildings, Provincial.

No. 85. ORDER THEREON, 4th November 1875, No. 3,130.

CIVIL WORKS, No. 6.

SANCTIONED.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 86. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 22nd October 1875, No. 573 :—

From Agent, Madras Railway, No. 483, dated 10th May 1875, with one enclosure.
From Examiner of Railway Accounts, No. 378, dated 14th May 1875.
From Agent, Madras Railway, No. 1,022, dated 30th September 1875, with two enclosures.
From Examiner of Railway Accounts, No. 1,027, dated 9th October 1875.

REFERRING to the Proceedings of Government, under date 29th April 1875, No. 1,177, I have the honor to forward, for the consideration of the Government of India, the enclosed papers showing the results of the investigation into the stores of the Locomotive Department of the Madras Railway as they stood on the 30th June 1873.

2. It will be observed that the actual stock, as taken by the Auditor, was valued at Rupees 21,95,872 as against Rupees 21,64,952 shown in the Stock Ledgers, and Rupees 18,90,049 in the General Books. The Acting Locomotive Superintendent accepts the figures of the Audit Department for several of the classes of stores aggregating in value Rupees 14,23,404, but for the remainder which are chiefly made up of small stores he does not recommend that any adjustment be made in the books. This would involve a good deal of labor, and although the figures may have been correct when stock was taken (for some items as far back as 1873), it is probable that they do not correctly represent the position of matters at the present time. It will be seen that the Examiner is of opinion that the Locomotive Superintendent has acted as far in the matter as is desirable.

3. Arrangements have been made for continuous stock-taking at Perambore in future, and I have requested a commencement with those classes which have not yet been adjusted.

4. The large difference between the Locomotive Superintendent's Account Current and his Stock-ledgers has not yet been cleared up, but attention will be given to this as future stock-taking, item by item, progresses.

From R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Madras, 10th May 1875, No. 483.

ADVERTING to previous correspondence upon the subject of the stock-taking in the Locomotive Department, I have the honor to send you, herewith, a comparative statement of stores in that department, as at the 1st of July 1873.

2. In forwarding the statement the Store Auditor observes "that the surplus in actual stock over Perambore stock-ledger balances on 1st July 1870 was ... ... Rs. 98,865 4 5,
and the surplus in the same on 1st July 1873... ... ... " 30,919 14 9,

67,945 5 8,

the difference arises principally from fuel, which on 1st July 1870 showed a surplus of ... ... Rs. 58,849 7 5,
and on 1st July 1873 of only ... ... " 7,605 5 7."

MADRAS RAILWAY COMPANY.

AUDIT DEPARTMENT.

Comparative Statement of Stock of Stores in Locomotive Department as at 1st July 1873.

Class.	Description.	Actual Stock 1st July 1873.	Stock-ledger Balance, 1st July 1873.	—	Actual Stock.	Locomotive Store and Workshop Account.
		RS. A. P.	RS. A. P.		RS. A. P.	RS. A. P.
A	Timber	2,67,001 8 0	2,67,001 8 0	1st July 1873	21,95,871 12 9	18,90,048 10 5
B	Fuel...	3,72,247 2 9	3,64,641 13 2	Surplus	...	3,05,823 2 4
C	Duplicate parts of engines	1,85,131 12 7	2,29,193 4 6			
D	Carriage iron works	1,31,225 14 2	85,381 10 11		21,95,871 12 9	21,95,871 12 9
E	Wheels and axles, axle-boxes, spring bearing and buffer and wheel tires ...	3,87,320 6 3	4,13,942 8 6	1st July 1870	23,47,887 12 4	22,22,250 0 8
F	Oil, paints, varnish and dry salteries ...	22,781 3 2	20,696 9 6	Surplus	...	1,25,637 11 8
G 1	Brass castings	49,354 8 7	50,884 4 0			
G 2	Iron castings	23,907 3 4	30,047 14 0			
H	Brass in tubes and sheets	54,692 4 3	81,289 12 7			
K	Copper in tubes, sheets and rods	1,06,310 4 9	93,596 3 11			
L	Iron	2,69,033 9 3	2,80,298 15 6			
M	Steel	45,282 2 11	46,196 13 5			
N	Tools...	30,161 1 2	39,739 5 1			
O	Miscellaneous stores	2,51,422 11 7	1,62,041 2 11			
	Total ...	21,95,871 12 9	21,64,951 14 0			
	Surplus, 1st July 1873 ...	...	30,919 14 9			
		21,95,871 12 9	21,95,871 12 9	Total ...	23,47,887 12 4	23,47,887 12 4

2[illegible]th *April* 1875. (Signed) F. CHURCH,
Chief Auditor.

28*th April* 1875. (Signed) J. M. THOMPSON,
Stores Auditor.

(Signed) R. B. ELWIN,
Agent and Manager.

From R. G. MACDONALD, Esq., Examiner of Railway Accounts, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Madras, 14th May 1875, No. 378.

I HAVE the honor, in returning the letter with enclosure from the Agent and Manager, Madras Railway, received under your memorandum, No. 702, dated 11th instant, to make the following observations:—

2. The value of the stores in possession of the Locomotive Department on 1st July 1873 borne upon the books of the head office was Rupees 18,90,049; the value of the actual stock in hand according to the enclosure of the Agent's letter was, on the same date, Rupees 21,95,872, or Rupees 3,05,823 more.

3. The concurrence of the Locomotive Superintendent in the figures advanced by the Audit Office has not been signified, and without it these results cannot, I venture to think, be accepted as conclusive.

4. I have not yet had an opportunity of examining the statements upon which the figures now referred to are based; and I would suggest that the Company be asked to report upon what principle the "actual stock" has been priced, and whether it includes any surplus or damaged stores, and if so, how they have been priced.

5. The comparison made between the actual stock and the store ledgers of the Locomotive Superintendent indicates that the store ledgers of that officer differed from his account current on the 1st July 1873 by Rupees 2,74,903. This I can hardly think can have been the case, and explanation seems necessary on the point.

6. The results are stated very meagrely, and I think a comprehensive report exhibiting the more important excesses and deficiencies in the principal articles might be called for. The first object of stock-taking is to see that there is value in hand to represent the book balance standing against stores. If the Locomotive Superintendent accepts the figures of the Audit Department, this condition is in the present case fulfilled. It is also an object to inquire into losses and excesses on individual items, to see that the Company's interests are protected, and to decide whether the persons in whose custody the stores are shall be required to make good deficiencies, or in what manner they shall be written off. Losses and depreciation of items of stores would apparently under G. O., No. 554, dated 17th February 1870, have to be carried to the Revenue Account.

7. No proposal is made for the adjustment of the excess value of stock, or for the adjustment of discrepancies relating to quantities in the ledgers. The rates at which issues have been made in the past have been too high. It is possibly hazardous now to reduce rates upon results dating nearly two years back, but the Company might be invited to say what they propose.

8. In conclusion, I would beg leave to observe that I doubt if a satisfactory result is ever likely to be attained by an attempt to state the stock on any one date as in this case. The figures became to a great extent the results of additions and subtractions in offices instead of the record of actual stock-taking. The Madras Railway authorities appear to be in favor of continuous* stock-taking, and by it one article can be taken and finished out of hand, the books being corrected, and when necessary a reference made to the Agent and the Government for authority to write off losses and deterioration.

* Agent's letter, No. 940, dated 20th October 1874.

From R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Madras, 30th September 1875, No. 1,022.

WITH reference to your letter of the 19th of May last, No. 565, and its enclosure, I have the honor to enclose you copies of two letters addressed to the Chief Auditor by the Acting Locomotive Superintendent* and the Store Auditor† respectively, upon the subject of the stores of the Locomotive Department of this Railway.

* No. 2,907 of 6th September 1875.

† Dated 9th September 1875.

2. A copy of the Chief Auditor's letter, No. 513, dated the 2nd of April 1875, was sent to you on the 5th idem with my endorsement No. 349.

From E. C. BOODLE, Esq., Acting Locomotive Superintendent, to F. CHURCH, Esq., Chief Auditor of the Madras Railway, dated Madras, 6th September 1875, No. 2,907.

IN reply to your letter, No. 1,257, of the 27th ultimo, I beg to inform you that I am prepared to accept the revised list of stock of spring and flat steel as returned by you in your letter of the 13th ultimo, this stock having been tested departmentally, and having been correctly ascertained, as suggested in my letter to the Agent and Manager, No. 270, of the 29th June last.

2. With regard to the stock-lists generally of this department submitted by your office, as no arrangements were made for a departmental check at the time the stock of the various stores was being taken, it is obviously impossible for me to furnish any guarantee of the accuracy of the figures advanced, but as I presume that every care has been taken, by those deputed by you for this work, to submit the stock statements with every regard to accuracy, it will, I think, be desirable to accept your returns of stock, and to make the necessary adjustments accordingly in the case of such valuable stores as carriage iron work, duplicate parts of engines, iron, steel, copper and brass.

3. With regard to fuel also, I shall be prepared to adjust the stock-ledgers to your lists in the case of the coke, coal and patent fuel. The adjustment of deficiencies and excesses in wood fuel has hitherto been made departmentally at intervals, as such excesses or deficiencies have been found to exist, on the completion of the issues from the large stacks stored at the various depôts. No adjustment of the firewood accounts will, therefore, now be requisite.

4. In the case of miscellaneous and other stores not already referred to which represent in the aggregate a very large sum, and which are composed of a vast number of small stores of comparatively small value separately, the adjustments of the stock-ledgers to your lists would involve considerable labor. Having regard to the fact that the stores, as represented in your lists, have reference to a date so far back as the 30th June 1873, I much doubt whether the advantage in point of accuracy to be derived by these adjustments would be such as to justify the extra labor which would have to be undertaken, more especially as the adjustments would probably considerably impede the current work. I would also mention that, in a large proportion of the miscellaneous stores it is very possible that the stock as rendered by you, though probably accurate when taken in 1873, may be far from so when considered as affording a correct estimate of the stock as it stands actually at this date. Under these circumstances, I would not recommend an adjustment of the stock-ledgers, excepting in the case of those stores which I have specially indicated, and which from their bulk are not liable to such variation in successive stock-takings as those stores of a less bulky nature.

5. I observe that the Examiner of Railway Accounts in his letter, No. 378, of the 14th May 1875, to the address of the Consulting Engineer, in reviewing the report furnished by you on the stock of this department as at 1st July 1873, writes "I doubt if a satisfactory result is very likely to be attained by an attempt to state the stock on any one date as in this case. The figures become to a great extent the results of additions and subtractions in offices instead of the record of actual stock-taking". I quite share the doubt expressed by Mr. Macdonald as to a satisfactory result being attained by an attempt to state the stock on any one date; and I would take this opportunity of very strongly advocating a system of continuous stock-taking, particularly as regards a stock of stores so large in extent as that of this department.

From J. M. THOMPSON, Esq., Stores Auditor, to F CHURCH, Esq., Chief Auditor of the Madras Railway Company, dated Madras, 9th September 1875.

IN reply to your letter, No. 806, of 21st May last, giving cover to copy of Consulting Engineer's letter No. 565, and Examiner of Railway Accounts No. 378 of 19th and 14th idem

respectively, I beg to state, with reference to paragraph 1 of the Consulting Engineer's letter, that the Acting Locomotive Superintendent in a letter to your address, No. 2,907, of 6th instant, has intimated his acceptance of my stock-taking of the following classes :—

—	Actual Stock, 1st July 1873.			Stock-ledger Balance, 1st July 1873.		
	RS.	A.	P.	RS.	A.	P.
B Fuel	3,72,247	2	9	3,64,641	13	2
C Duplicate parts of engines	1,85,131	12	7	2,29,193	4	6
D Carriage iron works	1,31,225	14	2	85,381	10	11
H Brass in tubes and sheets	54,692	4	3	81,289	12	7
K Copper in tubes, sheets, and rods	1,06,310	4	9	93,596	3	11
L Iron	2,69,033	9	3	2,80,298	15	6
M Steel, 1st July 1875	37,761	4	4	39,100	1	7
The Stock of—						
A—Timber was adjusted to the stock-taking though not referred to by the Acting Locomotive Superintendent in the above-quoted letter.	2,67,001	8	0	2,67,001	8	0
Difference ...	17,099	10	1	...		
	14,40,503	6	2	14,40,503	6	2

In paragraph 4 of the Acting Locomotive Superintendent's letter his reasons are furnished for not adjusting the stock-ledgers to my returns of the following classes :—

—	Actual Stock, 1st July 1873.			Stock-ledger Balance, 1st July 1873.		
	RS.	A.	P.	RS.	A.	P.
E Wheels and axles, axle-boxes, springs, bearing and buffer and wheel-tires.	3,87,320	6	3	4,13,942	8	6
F Oils, paints, and varnish...	22,781	3	2	20,696	9	6
G 1. Brass castings	49,354	8	7	50,884	4	0
G 2. Iron castings	23,907	3	4	30,047	14	0
N Tools	30,161	1	2	39,739	5	6
O Miscellaneous stores	2,51,422	11	7	1,62,041	2	11
	7,64,947	2	1	7,17,351	12	5
Difference ...	...			47,595	5	8
	7,64,947	2	1	7,64,947	2	1

2. The rates at which the value of the actual stock was computed were obtained from the balances brought to account in stock-ledgers on 1st July 1873. The surplus stock is included and priced in the same manner as the other stores. Damaged stores are not included in stock.

3. The Locomotive Superintendent's stock-ledger balance on 1st July 1873 is according to a return furnished by him, dated 10th March 1875.

	RS.	A.	P.
The balance, as taken by myself from the Locomotive	21,64,851	11	5 }
Stock-ledgers, is	21,64,951	14	9 }
Valuation per stock-taking	21,95,871	12	9
Account Current	19,12,684	8	9 }
General Books	18,90,048	10	5 }

The difference between the two last is reconciled every half-year.

4 & 5. During the progress of stock-taking, inquiry was frequently made regarding discrepancies, the causes were ascertained and the ledgers adjusted accordingly.

The best manner in which the total of deficiencies can be dealt with is to place them against the total of excesses which more than covers the former. It is proposed to effect adjustments in accordance with paragraph 9 of Proceedings of Government, dated 16th May 1873, marginally noted. A deficiency in teak-wood was adjusted by the transfer of a surplus in firewood.

I have agreed with the Chief Auditor that a re-valuation of all stores of all departments should be made in the first half of 1873, all surplus stock being applied to meet losses on damaged and useless stores when sold, and any available balance being utilized in the reduction of prices, an increase in price being made where a deficiency is discovered.

With reference to paragraph 8 of the Examiner of Railway Account's letter, I beg leave to refer to Chief Auditor's letter to the address of the Agent and Manager, No. 513, dated 2nd April 1875.

No. 1,027.

MEMORANDUM.

THE undersigned has the honor to return the enclosures of Consulting Engineer's memorandum, No. 1,370, dated 5th instant, on the subject of the stock-taking of the stores of the Locomotive Department of the Madras Railway, with the following observations which are made in continuation of letter, No. 378, dated 14th May 1875.

2. The points noticed in this office letter just referred to have had attention from the Railway Officers, and the action taken appears to have been as complete as was possible under the circumstances. The large difference between the Locomotive Superintendent's Account Current and his Ledgers of stores has not been cleared up. This will no doubt be a work of time, and it will probably be accomplished best item by item as future stock-taking progresses.

3. The Locomotive Superintendent's assent to the Audit Office figures representing stock in hand is qualified, and it is thought he proposes to go as far as is desirable in the adjustment of his stock-ledgers to accord with the stock-takers' returns.

4. No comprehensive report of the result of the stock-taking operations has been submitted. The amount of money involved was apparently worthy of this attention. Nothing is said of the quantity of surplus materials in stock.

5. The undersigned is of opinion that it will be well to approve of the proceedings of the Company, and to request that the system of continuous stock-taking now in force at the General Stores at Royapooram be introduced at Perambore without delay. All parties seem to be agreed that this system is the most efficient.

MADRAS,
9th October 1875.

(Signed) R. G. MACDONALD,
Examiner, Railway Accounts.

No. 87. ORDER THEREON, 4th November 1875, No. 3,131.

RAILWAY, No. 15.

ORDERED that these papers be submitted for the consideration of the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 88. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Governmeut of India, P.W.D., dated 4th November 1875, No. 3,132.

RAILWAY, No. 16.

From Government of India, No. 240—1 A.G., dated 16th April 1873.
From Government of India, No. 38 A.G., dated 27th January 1874.
To Government of India, No. 1,161, dated 2nd May 1874.
From Government of India, No. 273 A.G.R., dated 15th July 1874.
To Government of India, No. 47, dated 8th January 1875.
From Government of India, No. 114 A.G.R., dated 15th April 1875.

SIR,—Adverting to the correspondence quoted in the margin, I am directed to submit, for the consideration of the Government of India, the accompanying papers in connection with the Locomotive Stores of the Madras Railway. Attention was drawn to this subject by Captain Filgate, R.E., in his report, dated 4th January 1873, and orders were issued for a re-valuation of stores as they stood on the 1st July of that year. The matter has been under investigation ever since, and the papers which I am now to submit contain the result. The variation between the book value of stock and the actual value now brought out is considerable, and would probably have been avoided had the system of continuous stock-taking under adequate arrangements been introduced at an earlier date. This system is in operation in the General Stores Department at Royapooram, and is now being adopted as regards the Locomotive Stores at Perambore.

2. It will be seen from paragraph 4 of the Consulting Engineer's letter that measures will be taken for the adjustment of the discrepancies shown to exist between the Locomotive Superintendent's Stock-ledgers and his Account Current.

No. 89. Read the following endorsement of the Consulting Engineer for Railways, dated Madras, 27th October 1875, No. 579 :—

From FRANCIS D. LOGAN, Esq., Acting Agent of the South Indian Railway Company, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Trichinopoly, 22nd October 1875, No. 922.

I HAVE the honor to report that the Driver of No. 8 train on the 19th instant on arrival at Passoor was found to be in a state of intoxication and incapable of taking charge of his engine. On receipt of this information, the Locomotive Department arranged for the shunting engine to proceed from Trichinopoly with a spare driver to meet the No. 8 train, the latter being in the meantime brought on to Cuttalay by the first Fireman, and the Driver of No. 8 train taken back to Erode in charge of Guard of No. 6 train, which passed the No. 8 train at Passoor.

2. The shunting engine followed the No. 8 train back to Trichinopoly with hot axle, and on arrival at the 87th mile the axle broke and the engine left the rails. This information was received at Trichinopoly at about 3 A.M., and immediate steps were taken to send another engine with appliances for clearing the main line. Finding the line would not be cleared for No. 7 mail train to pass, the Traffic Manager arranged for another train to meet the No. 7 at the place of accident, and transferred the passengers, luggage, &c., and mail. This was done with a detention of ten minutes only.

3. The disabled engine was brought into Trichinopoly at 1-10 P.M., and the line cleared for ordinary train.

4. In consequence of the lateness of the hour at which the Traffic Manager would have been able to have started the No. 5 goods train, he cancelled the running of Nos. 5 and 8, transferring the passengers to the mail and ran a special goods train from Erode to Trichinopoly and back instead.

5. I have taken the necessary steps to prosecute the driver and shall report result.

SUBMITTED for the information of Government.

2. Further particulars will follow.

(Signed) J. H. M. SHAW-STEWART, Lieut.-Col., R.E.,
Consulting Engineer for Railways.

No. 90. ORDER THEREON, 4th November 1875, No. 3,133.

RAILWAY, No. 17.

RECORDED, pending the receipt of further particulars. The result of the examination of the broken axle should also be reported.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 91. Read the following letter from Lieutenant-Colonel J. F. FISCHER, R.E., District Engineer, Madura, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Camp at Tiroomungalum, 26th October 1875, No. 3,029 :—

I HAVE the honor to report, for the information of the Government, that since the 9th instant there has been constant and heavy falls of rain, the roads are cut to pieces with ruts and holes, many irrigation works have been damaged; but, as far as I am aware, no serious injury of any kind has been done to the railway, and I am taking steps to repair damages as well as I am able; but the District is so shorthanded in officers and upper subordinates, I must request the Government will be pleased to send me two as soon as possible to relieve me of some of the executive duties, for we have yet a full month's rainfall to expect and the drainage is sure to be heavy, as the ground is already thoroughly saturated and all the rivers have been running fairly.

No. 92. ORDER THEREON, 4th November 1875, No. 3,134.

IRRIGATION, No. 4.

ORDERED to be recorded.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 93. Read the following letter from Colonel F. J. MOBERLY, R.E., Superintending Engineer, Chingleput, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Guindy, 13th October 1875, No. 2,921 :—

I HAVE the honor to forward, for the sanction and allotment of funds, an estimate (Rupees 120) for constructing a latrine for the use of Native female servants in Government House at Guindy Park. The estimate has been approved of by the Military Secretary to His Excellency the Governor.

1 Plan.
1 Estimate.
1 Specification Report.

No. 94. ORDER THEREON, 4th November 1875, No. 3,135.

CIVIL WORKS, No. 7.

SANCTIONED for execution. An allotment of funds will shortly be made. The provision of a second seat seems desirable, and the thickness of the walls may conveniently be reduced as shown on the plan which will be returned for information of the Executive Engineer.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 95. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 29th October 1875, No. 584 :—

WITH reference to the Proceedings of Government, No. 2,728, dated 21st September 1875, I have the honor to submit two letters from the Agents of the Madras and the South Indian Railways, explaining what is the practice followed on their respective lines as regards security required from Station-masters and other servants holding positions of trust.

Madras Railway, No. 1,075, dated 15th October 1875.
South Indian Railway, No. 921, dated 21st October 1875.

2. On the Madras Railway all Station-masters and clerks, whose duties require them to collect money for the Company, pay a deposit of Rupees 500 on appointment, and on promotion to important stations the amount is increased to Rupees 1,000. The employé is further required to sign an Agreement* binding himself to a faithful performance of his duty, or in default thereof authorizing the appropriation of his deposit to the extent of the loss sustained by the Company. The interest on the amount deposited is paid to the employé.

* Form herewith enclosed.

3. The Traffic Manager writes that guards and head porters drawing Rupees 12 and upwards per mensem are also required to find security by a payment of 10 per cent. of their salaries, and when the deduction amounts to Rupees 500 it is invested in Government Paper or in the Government Savings' Bank, and the interest paid to the depositor half-yearly.

4. On the South Indian Railway also security is taken from employés who are concerned in the receipt from the public of traffic earnings, or who have valuables

passing through their hands. In the Traffic Department each clerk deposits guarantee to the extent of a year's pay, a moiety being paid on entering the service and the remainder deducted at 10 per cent. from the salary monthly. Every such person finding security also signs an indemnity bond making himself liable for all losses, costs, damages, &c., which the Company may directly or indirectly sustain by reason of, or in consequence of any or every breach or non-performance of duty on his part.

5. The systems obtaining on both Railways are said to have worked very satisfactorily, and there is nothing that I can suggest for their improvement, although there can be no doubt that in some cases a certain amount of hardship is experienced by the employés in complying with these terms. The suggestions made by the Chief Auditor of the South Indian Railway, with a view to meet this objection by a system of mutual guarantee, have not met with the concurrence of the Board of Directors.

From R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Madras, 15th October 1875, No. 1,075.

WITH reference to your letter of the 7th instant, No. 1,090, I have the honor to enclose you a copy of the Traffic Manager's letter, No. C/$\frac{1015}{1424}$, of the 12th instant, in which he explains what the practice is on this line with regard to the security required from Station-masters and other servants holding positions of trust.

2. The Agreement referred to by Mr. Church, a copy of which is enclosed, was introduced because we had some difficulty in recovering the amount of losses and claims from the securities of employés, especially after the latter had left the service. Each Agreement is stamped, and gives the Company power to recover any claim which can be proved. Since the introduction of the Agreements the system has worked very well.

From H. E. CHURCH, Esq., Traffic Manager, to R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, dated Madras, 12th October 1875, No. C/$\frac{1015}{1424}$.

CONSULTING Engineer's letter No. 1,090, dated 7th instant.

2. All Station-masters and clerks, whose duties empower them to collect money for the Company, are required to deposit, on appointment, security to the extent of 500 Rupees in Government Paper, and on promotion to important stations to increase the amount to 1,000 Rupees. The interest on this money is paid to the depositor half-yearly, and the employé is required to sign the accompanying form of Agreement.

3. Guards and head porters, drawing 12 Rupees and upwards, are also required to find security by a payment of 10 per cent. of their salaries, and when this deduction amounts to Rupees 500 it is invested in Government Paper, or in the Government Savings' Bank, and the interest paid to the depositor half-yearly.

4. The system has been attended with the best results so far as the Company is concerned, in making all classes of servants more careful in the discharge of their duty, and in the case of guards, I have reason to know that the compulsory payment makes a provision for their families in the event of death which would probably not otherwise be made.

From D. LOGAN, Esq., Acting Agent, South Indian Railway, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Trichinopoly, 21st October 1875, No. 921.

IN compliance with your No. 670, of the 7th instant, I have the honor to inform you that the Traffic Manager records his views as follows:—

"In this department each clerk, no matter what may be his position, deposits guarantee to the extent of a year's pay, a portion, say half of the amount, paid on entering the service and the remainder deducted at the rate of 10 per cent. from the pay monthly.

"This system has been found to work very satisfactorily on this line for several years past."

I also invited the opinion of the Chief Auditor, whose attention I know has been directed to the study of the question, and as these embody generally my own opinion, I subjoin them without further remark.

"It is customary on this line for employés to find security (when required) in cash. This is done in two ways, either by a deposit of the sum fixed, or by deductions of 10 per cent. from the employé's salary till a certain amount is paid. Interest is allowed upon these deposits, and deductions at the rate of 3 per cent. per annum derived from the investment in Government Promissory Notes of a certain portion of the amount held on this account by the Company; as a rule (though the exceptions are numerous) the minimum amount of security required is equivalent to twelve months' salary, and is not confined to that portion of the staff only who are concerned in the receipt from the public of traffic earnings, or who have valuables passing through their hands. Engine drivers, storekeepers, tool-keepers, &c., equally with clerks in the Traffic Department and those employed in the head offices, have to furnish security to some extent.

"I have heard of no complaints regarding this system, but I do not think it sufficiently protects the interests of the Company, and in some cases bears hard upon the employés. Looking to the classes from amongst whom the majority of our employés are drawn, the requirement of a deposit before entering the service obliges many to raise the requisite amount on loan. In writing to Mr. Betts in November last upon this subject, I pointed out in what I considered the disadvantage of the guarantee system as at present constituted mainly consisted, and the remedy which appeared to me likely to remove or palliate them. In comparing the deposit and the contribution made of finding security, I said, in the one case it forces the majority of employés to borrow the sum required at extravagant rates of interest, and in the other leaves the Company comparatively unprotected until such time as length of service itself forms in some measure a protection. It appears to me that the utility of the fund consists in its protection being *immediate* and not *prospective*, and this is defeated when for months and it may be years the security held by the Company is but a small proportion of the amount deemed necessary for the post. At the same time, in the interests alike of the Company and the employés, the guarantee required should be provided in a measure as little burdensome to the latter as possible.

"To meet these objections, I proposed that our fund should be formed upon a *mutual* system, that every member of the service should upon entering become a subscriber to this fund, which should guarantee the Company against all losses caused by or through members; that the rate of subscription should be as at present, 10 per cent. of the pay, and that when any individual's subscription (less any proportion which might have been deducted therefrom on account of losses paid by the fund) amounted to a sufficient sum to secure the Company against loss that might be caused by him personally, the fund should place that amount to such employé's credit, and he should be allowed that rate of interest which investment in Government securities might recur to the Company. I did not put forth this scheme as a perfect one, but as pointing to the way in which two ends were likely to be attained, *viz.*, immediate and tangible security to the Company, and *that* obtained at the least future cost to the employé. The subject was sent home for the consideration of the Board, who, however, were not prepared with the information before them, to disturb the present constitution of this Company's Fund.

"I may add that from every person finding security either by a deposit or by deductions from his pay, is taken a bond of indemnity authorizing the Company to retain such subscriptions or contributions to the guarantee fund, or so much thereof as the Company may deem necessary * * * as liquidated damages for all losses, costs, damages or expenses they may directly or indirectly sustain by reason, or in consequence of, any or every breach or non-performance of duty on the part of the employé concerned."

No. 96. ORDER THEREON, 4th November 1875, No. 3,136.

RAILWAY, No. 18.

ORDERED that these papers be forwarded for the information of the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 97. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Government of India, P.W.D., dated 4th November 1875, No. 3,137.

RAILWAY, No. 19.

SIR,—I am directed to acknowledge the receipt of your letter, No. 2,256 R., dated 10th September 1875, and in reply to forward the accompanying papers which explain the practice followed on the Railways in Madras as regards security being taken from Station-masters and other servants holding positions of trust. The system adopted is reported to have worked well in the case of each of the Railways concerned, and His Excellency the Governor in Council is unable to suggest any improvement.

No. 98. Read the following endorsement of the Chief Engineer for Irrigation, dated 25th October 1875, No. 41 :—

From A. J. DODSON, Esq., Manager and Acting Chief Engineer of the Madras Irrigation and Canal Company, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, dated Kurnool, 18th October 1875, No. 112.

My Deputation Allowance.

IN reference to the G.O., No. 1,772, of the 24th June last, I have the honor to append an extract from the Board's letter, No. 32, dated 24th September last :—

"*Deputation Allowance to Mr. Dodson.*—The Board have sanctioned the deputation allowance previously assented to by the Government in No. 1,772, of the 24th June last, under the arrangement there referred to."

SUBMITTED for the information of Government.

(Signed) JOHN MULLINS, Lieut.-Colonel, R.E.,
Chief Engineer for Irrigation.

No. 99. ORDER THEREON, 4th November 1875, No. 3,138.

IRRIGATION, No. 5.
Establishment.

ORDERED to be recorded.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 100. Read the following letter from Major J. BEATTY, R.E., Superintending Engineer, Godavery District, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Dowlaishweram, 19th October 1875, No. 2,154 :—

Four Statements.

I HAVE the honor to forward, herewith, two statements showing the cost of running the steamers *Godavery* and *Wurdah* between Rajahmundry and Tarlagudem, from 28th June to 3rd October 1875, together with two statements showing the details of income derived during that time, which show a net profit of Rupees 934-2-7.

Statement showing the Expenditure on Steamer "Godavery" and the Charges on Government for its working during the Months of June, July, and August 1875.

Number of Trips.	Actual Expenses on Working Days.						Expenses on Idle Days.					Total of Columns 5 and 10 showing the cost of each Trip.	Remarks.
	Wages.	Fuel.	Stores of all kinds.	Total of Wages, Fuel, and Stores.	Number of Days worked.	Daily Charge for working.	Wages.	Repairs.	Total of Wages and Repairs.	Number of Days lying idle.	Daily Charge on idle Days.		
1	2	3	4	5	6	7	8	9	10	11	12	13	
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.		RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.		RS. A. P.	RS. A. P.	
First trip, from 28th June to 9th July 1875.	76 10 0	201 8 9	33 14 3	312 1 0	$7\frac{1}{6}$	43 8 8	51 10 11	0 4 0	51 14 11	$4\frac{5}{6}$	10 11 11	363 15 11	
Income derived ...	...	...	...	...	...	...	...	...	...	...	...	445 4 4	As per details annexed.
												81 4 5	Profit.
Second trip, form 10th to 20th July 1875.	70 12 7	163 0 0	*120 5 5	354 2 0	$6\frac{1}{3}$	55 14 7	52 2 5	0 4 0	52 6 5	$4\frac{2}{3}$	11 3 8	406 8 5	
Income derived ..	...	...	...	...	...	...	...	...	...	...	...	524 2 5	As per details annexed.
												117 10 0	Profit.
Third trip, from 21st July to 5th August 1875.	82 0 8	185 6 6	13 11 2	281 2 2	$7\frac{1}{6}$	39 3 8	101 2 0	0 4 0	101 6 0	$8\frac{5}{6}$	11 7 7	382 8 2	
Income derived ...	...	...	...	...	...	...	...	...	...	...	...	569 15 9	As per details annexed.
												187 7 7	Profit.
Fourth trip, from 6th to 14th August 1875.	75 4 8	184 12 0	19 1 8	279 2 4	$6\frac{1}{4}$	44 10 7	33 2 6	3 14 6	37 1 0	$2\frac{3}{4}$	13 7 7	316 3 4	
Income derived ...	...	...	...	...	...	...	...	...	...	...	...	413 12 1	As per details annexed.
												97 8 9	Profit.
Total ...	304 11 11	734 11 3	187 0 4	1,226 7 6	$26\frac{11}{12}$	45 9 1	238 1 10	4 10 6	242 12 4	$21\frac{1}{12}$	11 8 3	1,469 3 10	
Total income derived ...	...	...	...	...	...	...	...	...	...	...	...	1,953 2 7	
												483 14 9	Total profit.

* Includes Rupees 101 for coir rope received from Calcutta.

DOWLAISHWERAM,
10*th September* 1875.

(Signed) A. J. CHANCELLOR,
Assistant Engineer.

(Signed) J. BEATTY, Major, R.E.,
Acting Superintending Engineer, Godavery District.

Statement showing the Expenditure on Steamers "Godavery" and "Wurdah," and the Charges on Government for its working during the Months of August, September, and October 1875.

Number of Trips.	Actual Expenses on Working Days.						Expenses on Idle Days.					Total of Columns 5 and 10 showing the Cost of each Trip.	Remarks.
	Wages.	Fuel.	Stores of all kinds.	Total of Wages, Fuel, and Stores.	Number of Days worked.	Daily Charge for working.	Wages.	Repairs.	Total of Wages and Repairs.	Number of Days lying idle.	Daily Charge on idle Days.		
1	2	3	4	5	6	7	8	9	10	11	12	13	
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.		RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.		RS. A. P.	RS. A. P.	
Fifth trip, from 15th to 27th August 1875.	81 2 4	137 14 6	22 12 3	241 13 1	6¾	35 13 2	75 2 3	0 4 0	75 6 3	6¼	12 1 0	317 3 4	
Income derived ...	...	...	...	...	...	...	...	...	...	...	...	500 3 11	As per details annexed.
												183 0 7	Profit.
Sixth trip, from 28th August to 7th September 1875.	86 1 1	198 0 6	10 6 11	294 8 6	7	42 1 2	49 2 10	4 0	49 6 10	4	12 5 8	343 15 4	
Income derived ...	...	...	...	...	...	...	...	...	...	...	...	489 6 4	As per details annexed.
												145 7 0	Profit.
Seventh trip, from 8th to 21st September 1875.	99 9 7	229 3 0	34 8 10	363 5 5	8	45 6 8	74 11 2	0 4 0	74 15 2	6	12 7 10	438 4 7	
Income derived ...	...	...	...	...	...	...	...	...	...	...	...	512 10 6	As per details annexed.
												74 5 11	Profit.
Eighth trip, from 22nd September to 3rd October 1875.	91 9 5	213 8 0	17 10 6	322 11 11	7 5/12	43 8 3	56 9 7	0 2 0	56 11 7	4 7/12	12 6 0	379 7 6	
Income derived ...	...	...	...	...	...	...	...	...	...	...	...	426 13 10	As per details annexed.
												47 6 4	Profit.
Total ...	358 6 5	778 10 0	85 6 6	1,222 6 11	29⅙	41 14 7	255 9 10	0 14 0	256 7 10	20⅚	12 5 0	1,478 14 9	
Total income derived ...	...	...	...	...	...	...	...	...	...	...	...	1,929 2 7	
												450 3 10	Total profit.

GODAVERY,
7th October 1875.

(Signed) J. BEATTY, Major, R.E.,
Acting Superintending Engineer, Godavery District.

(Signed) A. J. CHANCELLOR,
Assistant Engineer, in charge No. 1 Range, Godavery.

Statement showing the Details of Income derived by Steamer "Godavery" running between Dowlaishweram and Doomagoodiem.

Particulars of Trip.		Details of Charges on Goods carried.															
No.	Whether up or down.	Galnuts.		Deer Horns and Skins.		Tobacco.		Cloths.		Rice.		Wheat.		Salt.		Jaggery.	
—	—	Tons.	Amount.	Tons.	Amount.	Tons.	Amount.	Tons.	Amount.	Tons.	Amount.	Tons.	Amount.	Tons.	Amount.	Tons.	Amount.
			RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.
1	Up	...	...	...	...	...	...	$3\frac{1}{40}$	0 5 6	...	...	...	...	4	12 5 6	1	7 12 3
	Down ...	$29\frac{2}{5}$	113 0 3	$5\frac{1}{5}$	22 4 5	...	...	...	...	...	...	$5\frac{4}{5}$	36 8 2	...	...	...	...
	Total ...	$29\frac{2}{5}$	113 0 3	$5\frac{1}{5}$	22 4 5	...	...	$3\frac{1}{40}$	0 5 6	...	...	$5\frac{4}{5}$	36 8 2	4	12 5 6	1	7 12 3
2	Up	...	...	...	...	$\frac{2}{5}$	2 13 9	$\frac{9}{10}$	7 2 5	$\frac{3}{10}$	2 8 6	...	...	$1\frac{3}{10}$	4 8 0	...	...
	Down ...	$33\frac{1}{10}$	123 6 1	$1\frac{3}{4}$	5 7 5	...	...	...	...	...	...	...	...	...	...	...	...
	Total ...	$33\frac{1}{10}$	123 6 1	$1\frac{3}{4}$	5 7 5	$\frac{2}{5}$	2 13 9	$\frac{9}{10}$	7 2 5	$\frac{3}{10}$	2 8 6	...	...	$1\frac{3}{10}$	4 8 0	...	...
3	Up	$\frac{1}{4}$	2 4 2	...	...	...	...	...	...	$4\frac{1}{10}$	26 15 1	$\frac{3}{10}$	2 7 6	$1\frac{4}{5}$	10 7 7	$\frac{3}{4}$	5 3 1
	Down ...	$\frac{9}{20}$	28 14 10	$\frac{2}{5}$	1 10 9	...	...	...	...	...	...	...	...	...	...	...	...
	Total ...	$\frac{7}{10}$	31 3 0	$\frac{2}{5}$	1 10 9	...	...	...	...	$4\frac{1}{10}$	26 15 1	$\frac{3}{10}$	2 7 6	$1\frac{4}{5}$	10 7 7	$\frac{3}{4}$	5 3 1
4	Up	...	...	...	...	...	...	...	...	$8\frac{7}{10}$	63 5 11	...	...	...	...	$\frac{1}{5}$	1 13 7
	Down ...	$\frac{1}{20}$	0 8 0	$\frac{3}{10}$	1 4 3	...	...	...	...	...	...	...	...	...	...	...	...
	Total ...	$\frac{1}{20}$	0 8 0	$\frac{3}{10}$	1 4 3	...	...	...	...	$8\frac{7}{10}$	63 5 11	...	...	...	...	$\frac{1}{5}$	1 13 7

Statement showing the Details of Income derived by Steamer "Godavery" running between Dowlaishweram and Doomagoodiem.—(Continued.)

Particulars of Trip.		Details of Charges on Goods carried.—(Concluded.)													
No.	Whether up or down.	Fruit.		Cocoanuts.		Hemp.		Grains.		Wood.		Sundry Goods.		Total.	
—	—	Tons.	Amount.	Tons	Amount.	Tons.	Amount.	Tons.	Amount.	Tons.	Amount.	Tons.	Amount.	Tons.	Amount.
			RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.
1	Up... ...	$\frac{2}{5}$	2 14 6	$\frac{1}{80}$	0 6 9	...	...	...	...	...	...	$2\frac{11}{20}$	19 7 7	$10\frac{79}{80}$	43 3 1
	Down ...	...	...	...	...	$12\frac{4}{5}$	72 8 7	$2\frac{3}{5}$	15 6 10	...	38 11 1	...	...	$55\frac{4}{5}$	298 7 4
	Total ...	$\frac{2}{5}$	2 14 6	$\frac{1}{80}$	0 6 9	$12\frac{4}{5}$	72 8 7	$2\frac{3}{5}$	15 6 10	...	38 11 1	$2\frac{11}{20}$	19 7 7	$66\frac{63}{80}$	341 10 5
2	Up... ...	$\frac{2}{5}$	3 8 2	$\frac{2}{5}$	3 5 6	...	...	...	...	...	...	$\frac{17}{20}$	12 14 6	$4\frac{11}{20}$	36 12 10
	Down ...	...	...	...	...	21	98 6 11	$7\frac{9}{10}$	49 4 7	...	...	$\frac{9}{10}$	21 13 3	$64\frac{13}{2}$	298 6 3
	Total ...	$\frac{2}{5}$	3 8 2	$\frac{2}{5}$	3 5 6	21	98 6 11	$7\frac{9}{10}$	49 4 7	...	...	$1\frac{3}{4}$	34 11 9	$69\frac{1}{5}$	335 3 1
3	Up... ...	$\frac{9}{20}$	3 7 4	$\frac{1}{2}$	4 5 9	...	...	...	...	$\frac{7}{20}$	1 8 9	$9\frac{3}{5}$	60 12 6	$17\frac{9}{10}$	117 7 9
	Down ...	...	...	$\frac{1}{20}$	0 3 6	$1\frac{11}{20}$	9 7 3	$3\frac{17}{20}$	24 2 6	...	124 10 9	$1\frac{7}{20}$	2 2 2	$7\frac{13}{20}$	191 3 9
	Total ...	$\frac{9}{20}$	3 7 4	$\frac{11}{20}$	4 9 3	$1\frac{11}{20}$	9 7 3	$3\frac{17}{20}$	24 2 6	$\frac{7}{20}$	126 3 6	$10\frac{3}{4}$	62 14 8	$25\frac{11}{20}$	308 11 6
4	Up... ...	$\frac{3}{20}$	1 3 3	$\frac{2}{5}$	3 4 10	...	...	...	...	...	...	$1\frac{7}{20}$	8 12 6	$10\frac{4}{5}$	78 8 1
	Down ...	...	...	...	...	$3\frac{3}{20}$	19 6 4	$4\frac{3}{10}$	26 3 8	23	178 10 6	$\frac{9}{20}$	2 9 1	$31\frac{1}{4}$	228 10 6
	Total ...	$\frac{3}{20}$	1 3 3	$\frac{2}{5}$	3 4 10	$3\frac{3}{20}$	19 6 4	$4\frac{3}{10}$	26 3 8	23	178 10 6	$1\frac{4}{5}$	11 5 7	$42\frac{1}{20}$	307 2 7

Statement showing the Details of Income derived by Steamer "Godavery" running between Dowlaishweram and Doomagoodiem.—(Concluded.)

Particulars of Trip.		Details of the Amount of Traffic.																
No.	Whether up or down.	Passengers, 1st-class.		Passengers, 2nd-class.		Passengers, 3rd-class.		Cabins.		Cattle or Animals.		Towing Boats.		Miscellaneous.		Total.		Grand Total.
—	—	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.	
			RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.	RS. A. P.
1	Up ...	...	...	...	...	39½	30 0 2	...	...	...	...	...	12 6 5	...	...	39½	42 6 7	85 9 8
	Down ...	1	16 14 0	...	...	35	37 5 4	...	...	Cheeta. 1	7 0 0	...	...	...	...	37	61 3 4	359 10 8
	Total ...	1	16 14 0	...	...	74½	67 5 6	...	...	1	7 0 0	...	12 6 5	...	...	76½	103 9 11	445 4 4
2	Up ...	2	16 1 9	4	4 9 3	106½	61 12 3	...	...	...	...	...	27 15 3	...	...	112½	110 6 6	147 3 4
	Down ...	1	9 2 10	2	3 8 0	67	65 14 0	...	...	...	...	...	...	...	...	70	78 8 10	376 15 1
	Total ...	3	25 4 7	6	8 1 3	173½	127 10 3	...	...	...	...	...	27 15 3	...	...	182½	188 15 4	524 2 5
3	Up ...	...	...	...	...	148	122 8 7	1	10 0 0	...	...	...	19 9 10	...	10 8 0	149	162 10 5	280 2 2
	Down ...	...	...	...	...	111½	98 8 4	...	...	...	...	...	...	...	0 1 6	111½	98 9 10	289 13 7
	Total ...	...	...	...	...	259½	221 0 1	1	10 0 0	...	...	...	19 9 10	...	10 9 6	260½	261 4 3	569 15 9
4	Up ...	...	...	1	1 0 0	75½	48 3 0	1	8 0 0	...	...	...	...	...	...	77½	57 3 0	135 11 1
	Down ...	...	...	...	...	80	49 6 6	...	...	...	...	...	...	...	...	80	49 6 6	278 1 0
	Total ...	...	...	1	1 0 0	155½	97 9 6	1	8 0 0	...	...	...	...	...	...	157½	106 9 6	413 12 1

Dowlaishweram,
10th September 1875.

(Signed) J. BEATTY, Major, R.E.,
Ag. Supg. Engr., Godavery District.

(Signed) A. J. CHANCELLOR,
Assistant Engineer.

Statement showing the Details of Income derived by Steamer "Godavery" running between Dowlaishweram and Doomagoodiem.

Particulars of Trip.		Details of Charges on Goods carried.															
No.	Whether up or down.	Galnuts.		Deer Horns and Skins.		Tobacco.		Cloths.		Rice.		Wheat.		Salt.		Jaggery.	
—	—	Tons.	Amount.	Tons.	Amount.	Tons.	Amount.	Tons.	Amount.	Tons.	Amount.	Tons.	Amount.	Tons.	Amount.	Tons.	Amount.
			RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.
5	Up	...	...	...	...	...	...	...	...	12	80 6 6	...	...	...	...	$1\frac{3}{20}$	7 15 5
	Down ...	$3\frac{17}{20}$	19 8 11	$\frac{2}{20}$	0 10 3	...	...	$\frac{4}{20}$	0 12 1	...	...	$1\frac{1}{2}$	9 6 9	...	...	...	...
	Total ...	$3\frac{17}{20}$	19 8 11	$\frac{2}{20}$	0 10 3	...	...	$\frac{4}{20}$	0 12 1	12	80 6 6	$1\frac{1}{2}$	9 6 9	...	...	$1\frac{3}{20}$	7 15 5
6	Up	...	...	...	...	...	...	$1\frac{10}{20}$	10 5 11	$\frac{6}{20}$	33 11 6	...	...	$3\frac{13}{20}$	21 8 4	$\frac{7}{20}$	2 11 0
	Down ...	$3\frac{14}{20}$	14 9 9	$\frac{2}{20}$	0 10 8	...	...	...	...	...	...	...	...	...	...	...	...
	Total ...	$3\frac{14}{20}$	14 9 9	$\frac{2}{20}$	0 10 8	...	...	$1\frac{10}{20}$	10 5 11	$\frac{6}{20}$	33 11 6	...	...	$3\frac{13}{20}$	21 8 4	$\frac{7}{20}$	2 11 0
7	Up	...	...	...	...	...	...	$\frac{12}{20}$	4 10 3	20	105 5 6	...	...	$\frac{13}{20}$	3 5 6	$1\frac{3}{20}$	8 3 10
	Down ...	...	...	$\frac{11}{20}$	2 4 0	...	...	...	...	$\frac{14}{20}$	1 9 0	...	...	...	...	...	...
	Total ...	...	...	$\frac{11}{20}$	2 4 0	...	...	$\frac{12}{20}$	4 10 3	$20\frac{14}{20}$	106 14 6	...	...	$\frac{13}{20}$	3 5 6	$1\frac{3}{20}$	8 3 10
8	Up	...	...	...	...	...	...	$\frac{3}{4}$	6 11 2	$12\frac{13}{20}$	76 6 4	...	...	...	...	$\frac{17}{20}$	7 4 0
	Down ...	$\frac{6}{20}$	0 10 9	$\frac{1}{40}$	0 1 1	...	...	...	...	...	...	...	...	...	...	...	...
	Total ...	$\frac{6}{20}$	0 10 9	$\frac{1}{40}$	0 1 1	...	...	$\frac{3}{4}$	6 11 2	$12\frac{13}{20}$	76 6 4	...	...	...	...	$\frac{17}{20}$	7 4 0

Statement showing the Details of Income derived by Steamer "Godavery" running between Dowlaishweram and Doomagoodiem.—(Continued.)

Particulars of Trip.		Details of Charges on Goods carried.—(Concluded.)													
No.	Whether up or down.	Fruit.		Coconuts.		Hemp.		Grains.		Wood.		Sundry Goods.		Total.	
—	—	Tons.	Amount.	Tons.	Amount.	Tons.	Amount.	Tons.	Amount.	Tons.	Amount.	Tons.	Amount.	Tons.	Amount.
			RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.
5	Up ...	$\frac{4}{20}$	6 9 0	1	7 5 7	...	...	$\frac{16}{20}$	3 10 10	...	...	$8\frac{14}{20}$	54 11 8	$23\frac{17}{20}$	160 11 0
	Down ...	...	...	...	...	$3\frac{9}{20}$	21 9 1	$2\frac{3}{4}$	17 5 2	8	53 4 7	$3\frac{17}{20}$	9 5 3	$23\frac{14}{20}$	131 14 1
	Total ...	$\frac{4}{20}$	6 9 0	1	7 5 7	$3\frac{9}{20}$	21 9 1	$3\frac{11}{20}$	21 0 0	8	53 4 7	$12\frac{11}{20}$	64 0 11	$47\frac{11}{20}$	292 9 1
6	Up ...	$\frac{16}{20}$	4 14 11	$1\frac{2}{20}$	2 14 5	...	...	...	...	...	...	$6\frac{8}{20}$	33 11 1	$14\frac{1}{20}$	109 13 2
	Down ...	..	...	...	...	$2\frac{3}{20}$	19 7 10	...	...	...	117 14 5	$1\frac{5}{20}$	2 10 0	7	155 4 8
	Total ...	$\frac{16}{20}$	4 14 11	$1\frac{2}{20}$	2 14 5	$2\frac{2}{20}$	19 7 10	...	...	...	117 14 5	$7\frac{1}{2}$	36 5 1	$21\frac{1}{20}$	265 1 10
7	Up ...	$\frac{13}{20}$	4 12 4	$\frac{6}{20}$	1 8 3	...	...	$\frac{7}{20}$	2 10 9	...	...	$4\frac{10}{20}$	31 9 4	$28\frac{4}{20}$	162 1 9
	Down ...	...	...	...	...	...	...	$3\frac{4}{20}$	16 1 4	...	111 0 2	$3\frac{19}{20}$	7 2 3	$8\frac{3}{20}$	138 0 9
	Total ...	$\frac{13}{20}$	4 12 4	$\frac{6}{20}$	1 8 3	...	...	$3\frac{11}{20}$	18 12 1	...	111 0 2	$8\frac{9}{20}$	38 11 7	$36\frac{12}{20}$	300 2 6
8	Up ...	$\frac{8}{20}$	3 5 1	$1\frac{1}{20}$	8 6 10	...	...	$\frac{3}{20}$	0 15 6	...	...	$3\frac{18}{20}$	27 0 3	$19\frac{15}{20}$	130 1 2
	Down ...	...	...	...	...	$\frac{2}{20}$	1 1 0	$1\frac{12}{20}$	4 13 6	...	...	$2\frac{17}{20}$	6 10 3	$4\frac{7}{8}$	13 4 7
	Total ...	$\frac{8}{20}$	3 5 1	$1\frac{1}{20}$	8 6 10	$\frac{2}{20}$	1 1 0	$1\frac{15}{20}$	5 13 0	...	...	$6\frac{15}{20}$	33 10 6	$24\frac{5}{8}$	143 5 9

Statement showing the Details of Income derived by Steamer "Godavery" running between Dowlaishweram and Doomagoodiem.—(Concluded.)

Particulars of Trip.		Details of the Amount of Traffic.																Grand Total.
No.	Whether up or down.	Passengers, 1st-class.		Passengers, 2nd-class.		Passengers, 3rd-class.		Cattle or Animals.		Towing Boats.		Cabins.		Miscellaneous.		Total.		
—	—	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.	No.	Amount.	
			RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.	RS. A. P.
5	Up ...	...	...	...	...	145½	126 11 6	...	...	...	...	...	...	...	...	145½	126 11 6	287 6 6
	Down ...	...	...	2	10 4 8	69½	65 6 11	...	...	...	...	...	...	...	5 3 9	71½	80 15 4	212 13 5
	Total ...	...	...	2	10 4 8	215	192 2 5	...	...	...	...	...	...	...	5 3 9	217	207 10 10	500 3 11
6	Up ...	1	16 5 0	...	...	133	108 15 1	...	...	...	13 5 3	...	...	...	1 4 0	134	139 13 4	249 10 6
	Down ...	1	16 5 0	...	...	99	67 10 2	...	...	...	...	...	...	...	0 8 0	100	84 7 2	239 11 10
	Total ...	2	32 10 0	...	...	232	176 9 3	...	...	...	13 5 3	...	...	...	1 12 0	234	224 4 6	489 6 4
7	Up ...	1	16 5 0	...	...	100	97 3 7	...	...	...	...	1	8 0 0	...	...	102	121 8 7	283 10 4
	Down ...	1	16 5 0	...		110	74 10 5	...	...	...	...	...	...	...	...	111	90 15 5	229 0 2
	Total ...	2	32 10 0	...	...	210	171 14 0	...	...	...	...	1	8 0 0	...	...	213	212 8 0	512 10 6
8	Up ...	3	48 15 0	...	...	129	100 11 3	...	...	...	21 12 1	1	5 0 0	...	...	133	176 6 4	306 7 6
	Down ...	3	48 0 0	...	...	83½	59 1 9	...	...	...	...	...	...	...	...	86½	107 1 9	120 6 4
	Total ...	6	96 15 0	...	...	212½	159 13 0	...	...	...	21 12 1	1	5 0 0	...	...	219½	283 8 1	426 13 10

Dowlaishweram,
7th October 1875.

(Signed) J. BEATTY, Major, R.E.,
Superintending Engineer, Godavery District.

(Signed) A. J. CHANCELLOR,
Assistant Engineer.

No. 101. ORDER THEREON, 4th November 1875, No. 3,139.

ACCOUNT, No. 3-A.

ORDERED that these statements be printed and published for general information, pending further report with which the District Engineer will no doubt send a clear analysis of the results of the entire season's traffic.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following :—

No. 102. From the Commandant, Sappers and Miners, dated 13th October 1875, No. 818.

No. 103. ORDER THEREON, 4th November 1875, No. 3,140.

ESTABLISHMENT, No. 9-A.

BEFORE disposing of this reference the letter will be referred, through the Military Department, to the Adjutant-General for any remarks which His Excellency the Commander-in-Chief may wish to offer. It is understood that there has been recent correspondence on the subject with the Horse Guards.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 104. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 3rd November 1875, No. 596 :—

I HAVE the honor to submit herewith, for transmission to the Government of India, a list of the capital sanctions in force in the Engineering, Locomotive, and Traffic Departments of the Madras Railway for the quarter ending 31st December 1875.

MADRAS RAILWAY.

LIST OF OPEN CAPITAL SANCTIONS FOR THE QUARTER ENDING 31ST DECEMBER 1875.

Bills for Works closed on the 30th September 1875 will be passed up to 31st December 1875, but no work must be done after the 30th September 1875.

N.B.—Expenditure incurred on works not in this list will not be passed unless formal sanction has been previously obtained.

Register Number and Date.	Authority.	Works.	Sanctioned Expenditure. Indian.	Sanctioned Expenditure. English.	Sanctioned Expenditure. Total.	Expenditure as per Auditor's Books up to 18th September 1875. Indian.	Expenditure as per Auditor's Books up to 18th September 1875. English.	Expenditure as per Auditor's Books up to 18th September 1875. Total.	Date on which Sanction closes.	Remarks.
		ENGINEERING DEPARTMENT.	RS.	RS.	RS.	RS.	RS.	RS.		
30 M. R. of 1874-75 ...	G. I. No. 2,301 R. of 18th September 1874.	Piping for water-supply in case of fire at the Royapooram terminus.	2,420	6,930	9,350	...	...	...	30th September 1876.	Term of sanction extended.
31 M. R. of 1874-75 ...	G. I. No. 2,354 R. of 22nd September 1874.	Renewing with iron telegraph standards the wooden poles between Madras and Arconum.	...	20,886	20,886	...	...	...	Impossible to fix a date.	
2 M. R. of 1874-75 ...	G. I. No. 795 R. of 14th April 1874.	Watering arrangements at the new Central Station.	1,800	3,003	4,803	3	200	203	31st March 1876.	
30 M. R. of 1874-75 ...	G. I. No. 2,301 R. of 18th September 1874.	Piping for water-supply in case of fire at the Salt Cotaur Station.	1,436	5,438	6,874	...	...	...	30th September 1876.	Term of sanction extended.
	M. G. O. No. 2,112 of 24th July 1875. M. G. O. No. 2,401 of 20th August 1875. M. G. O. No. 2,506 of 2nd September 1875.	Laying an additional line of rails between 4 miles 32¼ chains and the Avady Station.	...	...	3,40,000	4,712	575	5,287	Second quarter after receipt of sanction.	Necessity for doubling any portion of line under discussion. Work stopped.
	M. G. O. No. 2,938 of 14th October 1875.	Single 9 feet opening with wrought iron girders in lieu of single 9 feet arch at 8 miles, 20 telegraph posts, South-west Line.	2,646	267	2,913	...	...	...	30th September 1876.	Work being proceeded with, Rupees 1,031 to Revenue.
	M. G. O. No. 2,938 of 14th October 1875.	Single 12 feet opening with wrought iron girders in lieu of double 6 feet arches at 10 miles, 8 telegraph posts, South-west Line.	3,444	474	3,918	...	...	...	30th September 1877.	Do. do., Rupees 1,707 to Revenue.
	M. G. O. No. 2,933 of 14th October 1875.	Single 12 feet opening with wrought iron girders in lieu of double 6 feet arches at 11 miles, 2 telegraph posts, South-west Line.	3,118	531	3,649	...	...	...	Do. do. ...	Do. do., Rupees 1,626 to Revenue.
11 M. R. of 1875-76 ...	G. I. No. 1,681 R. of 6th July 1875.	Smithy at the Perambore Workshops.	26,606	75,551	1,02,157	...	...	...	31st March 1877.	
Do. do. ...	Do. do.	Iron and Brass Foundry at do.	13,659	19,100	32,759	...	...	...	Do. do.	

Do. do. ...	Do. do.	Making ground for Smithy and foundry at do.	6,255	4,368	10,623	...	...	...	Do. do.	
12 M. R. of 1875-76 ...	G. I. No. 1,697 R. of 8th July 1875.	Watering arrangements at do.	15,863	48,238	64,101	...	...	...	30th September 1877.	
37 M. R. of 1872-73...	G. I. No. 375 G. R. of 4th March 1873.	Protective works for the Poiney bridge.	1,82,501	3,430	1,85,931	40,704	263	40,967	30th September 1875.	Revised estimates for these works sent to Government, see G.O., No. 2,677, of 17th September 1875
	Do. No. 1,866 G. R. of 1st November 1873.	Do. do. Coriattum bridge.	60,276	2,040	62,316	21,959	929	22,888		
	G. I. No. 2,805 R. of 7th November 1874.	Two 30-feet openings with wrought iron girders at 105 miles, 11 telegraph posts, South-west Line.	14,211	10,473	24,684	14,211	7,046	21,257	30th June 1876 ...	Rupees 4,767 to Revenue.
20 M. R. of 1872-73 ...	G. I. No. 1,640 G. R. of 14th October 1872.	Protective works for the Palar bridge.	60,493	968	61,461	24,545	Cr. 125	24,420	30th September 1875.	Revised estimate for this work sent to Government, see G.O., No. 2,677, of 17th September 1875.
27 M. R. of 1874-75 ...	G. I. No. 2,113 R. of 4th September 1874.	Renewing with iron telegraph standards the wooden poles between Vaniembady and Puttamby.	...	72,298	72,298	...	...	...	Impossible to fix a date.	Rupees 61,143 to Revenue.
	C. E. No. 887 of 30th July 1875.	Shed over goods transhipping platform at the Jollarpett Station.	3,112	10,709	13,821	...	...	...	30th September 1876.	
	C. E. No. 915 of 20th August 1875.	Four huts for the conservancy staff at Jollarpett Station.	1,240	...	1,240	...	...	...	Do. do.	
	M. G. O. No. 1,136 of 22nd April 1875.	Securing loose boulders at Tiger Rock Cutting, Bangalore branch.	8,347	...	8,347	3,128	293	3,421	30th June 1876.	
	C. E. No. 886 of 13th August 1875.	Catch siding at the Mullapooram Station.	3,205	3,633	6,838	...	...	...	30th September 1877.	Rupees 55 to Revenue.
	C. E. No. 814 of 23rd July 1875.	Erecting wrought iron tank over the existing tank-house at Wuttakullee Station.	289	1,307	1,596	1	...	1	30th September 1876.	Rupees 24 to do.
	M. G. O. No. 1,084, dated 17th April 1875.	Shed over goods open platform at the Avenashy Station.	1,178	885	2,063	251	...	251	30th June 1876.	
6 M. R. of 1871-72 ...	G. I. No. 948 R. of 2nd June 1871.	Renewing the line between Avenashy and Muddikerry with iron pot sleepers.	...	1,38,045	1,38,045	...	1,20,189	1,20,189	Impossible to fix a date.	Rupees 3,32,226 to Revenue.
	C. E. No. 815 of 23rd July 1875.	Goods godown and platform at Karamady Station.	3,056	749	3,805	...	...	...	30th September 1876.	
	M. G. O. No. 1,407 of 21st May 1875.	Latrines for Native passengers at the Mettapolliem Station.	1,477	247	1,724	915	...	915	30th June 1876.	
	C. E. No. 707 of 23rd June 1875.									
	C. E. No. 811 of 23rd July 1875.	Shed over goods open platform at Mettapolliem Station.	1,349	1,161	2,510	...	...	...	30th September 1876.	
17 M. R. of 1873-74 ...	G. I. No. 281 G. R. of 23rd July 1873.	Renewing the line between Muddikorry and Palghaut with iron pot sleepers.	...	36,782	36,782	...	12,777	12,777	Impossible to fix a date.	Rupees 1,80,518 to Revenue.
	M. G. O. No. 1,218 of 1st May 1875.	Guards' barracks at Aroonum Station.	5,536	122	5,658	1,002	148	1,150	30th June 1876.	

Bills for Works closed on the 30th September 1875 will be passed up to 31st December 1875, &c.—(Concluded.)

N.B.—Expenditure incurred on works not in this list will not be passed unless formal sanction has been previously obtained.

Register Number and Date.	Authority.	Works.	Sanctioned Expenditure.			Expenditure as per Auditor's Books up to 18th September 1875.			Date on which Sanction closes.	Remarks.
			Indian.	English.	Total.	Indian.	English.	Total.		
		Engineering Dept.—(*Concld.*)	RS.	RS.	RS.	RS.	RS.	RS.		
19 M. R. of 1873-74 ...	G. I. No. 1,866 G. R. of 1st November 1873.	Protective works to the Naggery bridge.	43,415	1,023	44,438	14,564	62	14,626	30th September 1875.	Revised estimate sent to Government, see G.O., No. 2,677 of 17th September 1875.
	M. G. O. No. 1,751 of 22nd June 1875.	Erecting wrought iron tank over existing tank-house at Puttoor Station.	299	1,282	1,581	19	877	896	31st March 1876 ...	Rupees 126 to Revenue.
	M. G. O. No. 2,383 of 23rd August 1874.	Dwelling-houses and latrines for Native Firemen at Triputty Station.	1,762	18	1,780	307	43	350	30th September 1876.	Term of sanction extended.
	M. G. O. No. 1,155 of 23rd April 1875.	Single 9 feet, openings with wrought iron girders at 106 miles, 2 telegraph posts, North-west Line.	2,565	267	2,832	2,445	...	2,445	31st March 1876 ...	Rupees 326 to Revenue.
	M. G. O. No. 1,218 of 1st May 1875.	Guards' barracks at Cuddapah Station.	5,585	122	5,707	180	149	329	30th June 1876.	
	M. G. O. No. 1,167 of 27th April 1875.	Single 20 feet opening with wrought iron girders at 173 miles, 1 telegraph post, North-west Line.	2,728	1,085	3,813	1,231	23	1,254	Do. do ...	Revised estimate submitted for sanction.
8 M. R. of 1875-76 ...	G. I. No. 1,404 R. of 3rd June 1875.	Bridge over the Huggry river ...	2,30,057	4,71,117	7,01,174	1,95,785	4,04,984	6,00,769	30th June 1877 ...	
	C. E. No. 647 of 9th June 1875.	Native latrines at Bellary Station.	1,846	494	2,340	221	243	464	30th June 1876 ...	
	C. E. No. 911 of 19th August 1875.	Additional works required by the Traffic Department at Adony Station.	1,509	...	1,509	...	...	...	30th September 1876.	
23 M. R. of 1874-75 ...	G. I. No. 1,747 R. of 28th July 1874. M. G. O. No. 924 of 7th April 1875.	Thirty dwelling houses and three latrines for Native Firemen at Jollarpett.	6,187	53	6,240	2,200	69	2,269	30th September 1876.	Term of sanction extended.
		Locomotive Department.*								
57 M. R. of 1869-70 ...	G. I. No. 874 R. of 2nd March 1875.	290 Second-class composite and third-class carriage sun-shades.	14,640	20,560	35,200	12,029	13,002	25,031	31st December 1875.	
	G. I. No. 37 R. of 13th January 1870.	2,890 Wagons fitting axle-box keeps (oil.)	17,130	37,570	54,700	15,389	31,636	47,025	Do. do.	

25 M. R. of 1874-75 ...	G. I. No. 2,068 R. of 28th August 1874.	2609 Vehicles to be rendered capable of carrying 9 tons each by an additional plate to each spring.	12,012	42,559	54,571	6,232	22,093	28,325	31st March 1876.	
	M. G. O. No. 688 of 11th March 1875.	Fitting thirty-five third-class carriages with sun-shades.	525	875	1,400	23	50	73	31st December 1875.	
39 M. R. of 1874-75 ...	G. I. No. 57 R. of 7th January 1875.	4 Double saloon first-class night carriages.	8,600	16,200	24,800	6,421	6 377	12,798	Do. do.	
	C. E. No. 426 of 14th April 1875.	15 Sets of gratings to be fitted to second-class carriages for Civil and Military prisoners.	435	390	825	66	127	193	Do. do.	
14 M. R. of 1875-76 ...	G. I. No. 1,914 R. of 2nd August 1875.	Fitting cow-catchers to 118 engines.	17,110	8,850	25,960	...	...	...	31st March 1876.	
	M. G. O. No. 2,814 of 29th September 1875.	100 Low-sided open goods wagons to be converted into high-sided open goods wagons and rendered capable of carrying 9 tons each.	2,519	10,981	13,500	2,519	456	2,975	31st December 1875.	Rupees 27,608 to Revenue.
19 M. R. of 1875-76 ...	G. I. No. 2,111 R. of 23rd August 1875.	Machine in the stores at Perambore required for use in the Workshop at Perambore.	...	12,155	12,155	...	...	...	Do. do.	
		TRAFFIC DEPARTMENT.								
	M. G. O. No. 3,507 of 14th December 1874.	Checking and practising telegraph instruments required for the use of the Traffic Department.	926	1,137	2,063	691	236	927	Do. do.	

* The expenditure in this department has been audited to 31st July 1875.

(Signed) C. J. SMITH, Major, R.E.,
for *Consulting Engineer for Railways.*

MADRAS,
3rd November 1875.

No. 105. ORDER THEREON, 5th November 1875, No. 3,141.

RAILWAY, No. 20.

ORDERED that this statement be forwarded to the Government of India.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 106. (DOCKET No. 3,142, dated 5th November 1875.)

COPY of the above forwarded to the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 107. Read the following Proceedings of the Government of India in the Public Works Department (Railway), dated Simla, 23rd October 1875, Nos. 2,643—50 R. :—

Charges for the conveyance by Rail of His Royal Highness the Prince of Wales and Suite.

Read—

Letter from Consulting Engineer, Calcutta, No. 2,490, of 15th June 1875, and enclosures.

RESOLUTION.—The Government of India are pleased to rule that all credit-notes or bills for railway freight on account of His Royal Highness the Prince of Wales and Suite shall be submitted to, and discharged by, Major-General S. J. Browne, C.B., V.C., on special duty, in the same way that similar bills on account of His Excellency the Viceroy and Governor-General are dealt with by the Military Secretary to the Viceroy. Major-General Browne will be requested to make arrangements accordingly.

ORDER.—Ordered, that this Resolution be forwarded to the Consulting Engineer for Guaranteed Railways at Calcutta, with the remark that no separate account of these charges need be kept up. Also to the Governments of Madras and Bombay in the Public Works Department (Railway), the Director of State Railways, the Consulting Engineers to the Government of India for Guaranteed Railways at Lahore and Lucknow, and Major-General S. Browne, for information and guidance.

Also to the Foreign Department for information.

(Signed) J. THORPE,
for *Under Secretary.*

No. 108. ORDER THEREON, 5th November 1875, No. 3,143.

RAILWAY, No. 21.

COMMUNICATED to the Consulting Engineer for the information and guidance of the Railway authorities.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 109. Read the following Proceedings of the Government of India in the Public Works Department, (Account—Guaranteed Railways,) dated Simla, 25th October 1875, Nos. 317—23 $\frac{A.}{G.-R.}$:—

Review of Receipts and Charges on account of the Guaranteed Railways for the year 1874-75.

Read again—

Public Works Department Resolution, Nos. 596—602 $\frac{A}{G-R,}$ dated 23rd December 1873.

Read also—

(1). Letter No. 200 $\frac{A}{G-R}$ dated 14th July 1875, to the Financial Department.
(2). Docket No. 2,228, dated 2nd August 1875, and enclosures, from the Government of Madras.
(3). Letter No. 917, dated 14th August 1875, and enclosures, from the Government of Bombay.
(4). Letter No. 1,693, dated 28th June 1875, and enclosures, from Consulting Engineer for Guaranteed Railways, Calcutta.
(5). Letter No. 2,520, dated 18th September 1875, and enclosures, from the Consulting Engineer for Guaranteed Railways, Calcutta.
(6). Letter No. 860, dated 11th August 1875, and enclosures, from Consulting Engineer for Guaranteed Railways, Lahore.
(7). Letter No. 244 $\frac{A}{G-R,}$ dated 20th August 1875, to the Consulting Engineer for Guaranteed Railways, Lahore.
(8). Letter No. 1,557, dated 6th July 1875, from the Consulting Engineer for Guaranteed Railways, Lucknow.
(9). Letter No. 233 $\frac{A}{G-R,}$ dated 7th August 1875, to the Consulting Engineer for Guaranteed Railways, Lucknow.
(10). Letter No. 1,970, dated 26th August 1875, and enclosures, from the Consulting Engineer for Guaranteed Railways, Lucknow.

Read also the following :—

Note by Lieutenant-Colonel J. J. McLEOD INNES, V.C., R.E., Accountant-General, Public Works Department, No. 2,195 A—R., dated 15th September 1875, submitting a statement of the financial transactions of the Guaranteed Railways during the official year 1874-75.

I BEG to lay before the Government of India a statement showing under Capital and Revenue the Indian transactions of the Guaranteed Railways for the official year 1874-75, compared with the Regular and Budget Estimates of the year.

2. This statement represents the results of the year's account for the Guaranteed Railways as recorded in the books of the Public Works Department. Complete accounts for all the Guaranteed Railways for the official year were rendered from this Office to the Comptroller-General by the 15th July 1875, the date mentioned in the penultimate paragraph of Public Works Department memorandum to the Financial Department, No. 200 $\frac{A}{G-R,}$ of 14th idem. I have yet to receive from the Comptroller-General a return of the amounts adopted by him in the Finance and Revenue accounts, as well as explanations of any differences that may be found to exist between the two sets of figures.

3. The explanations for the more important differences between the estimates and the actuals are briefly as follows :—

CAPITAL.

Payments into Treasury.

4. The Budget Estimate for the payments into the Treasury fell very far short of the requirements of the East Indian Railway, Jubbulpoor Line, the payments on account of the

Oudh and Rohilkhund Railway were also considerably underestimated. Transactions of an exceptional nature, such as the sale of 25 engines and of a large quantity of sleepers and other stores to the Main Line by the Jubbulpoor Line, account for the Budget Estimate of the Jubbulpoor Line being so greatly exceeded. The variation in the Oudh and Rohilkhund Railway figures is apparently owing to the estimate being insufficient.

CAPITAL.

Withdrawals from Treasury.

5. The Budget Estimate of the withdrawals has proved, for all the Railways, less accurate than the receipts. They have been over estimated in the majority of instances, particularly so in the case of the South Indian, the Oudh and Rohilkhund, and the Scinde, Punjab and Delhi Railways. The savings from the estimates in the case of the two former Railways are due to the estimates of Construction expenditure having been excessive, a too sanguine view having been taken of the Construction operations of the year.

6. In the case of the Scinde, Punjab and Delhi Railway, provision was made to meet the adjustment of the expenditure incurred in restoring the works damaged by the floods of 1871 and 1872, by debiting Capital and crediting Revenue with the amount of the outlay previously charged to Revenue, which, it has been decided, should be borne by Capital. The adjustment was sanctioned in Public Works Department, No. 108 G—R., dated 15th January 1874; and although nineteen months have elapsed since this sanction was given, and although provision was made to meet the expenditure both in the Budget and in the Regular Estimates of the year, I regret to say the necessary adjustments have not yet been carried out. The explanation sent forward for this omission has been received in a letter from the Examiner, and is not satisfactory; the great bulk of the expenditure was incurred in past years, and its incidence settled and sanctioned over a year and a half ago. The Auditor states that the work of recasting the accounts of the period concerned has been very heavy, and although endeavours have been made to clear the accounts, he has not yet been able to do so. The Examiner under date the 12th August last writes :—

"The new break in the Scinde, Punjab and Delhi Railway has thrown heavy extra work on every department of the Railway, and I much doubt if the restoration works accounts will be completed with the half-year ending 30th June 1875."

7. The estimate of withdrawals for the Bombay, Baroda and Central India Railway was also largely in excess of the actuals; this is chiefly "owing to provision having been made in the framing of the estimate for a large expenditure on the Wadhwan Extension which was not incurred."

8. The actuals of the East Indian Railway, Main Line, exceeded the Budget Estimate by a large sum. The exceptional transactions referred to in the 4th paragraph of the note have given rise to the increased outlay.

REVENUE.

Payments into Treasury.

9. In the case of the East Indian Railway, Main Line, the actuals exceeded the Budget Estimate by nearly 18 per cent., of the Jubbulpore Line by 32½ per cent., of the Oudh and Rohilkhund Railway by 16 per cent., of the South Indian Railway by 10½ per cent. In the case of Scinde, Punjab and Delhi the actuals fell short of the estimate by nearly 14 per cent. The disturbing element in the case of the East Indian Railway was the increased traffic due to the famine, of which it was not possible to form a very close estimate. The Oudh and Rohilkhund Railway being newly opened for traffic, correct data were not available upon which to base the estimate, and the results proved more favorable than was anticipated. For the South Indian Railway the foreign traffic receipts were omitted to be provided for. The reason for

the difference between the actuals and the Budget Estimate in the case of the Scinde, Punjab and Delhi Railway has already been explained.

10. With the exception of that for the Scinde, Punjab and Delhi Railway, the Regular Estimates were fairly correct, and the actuals altogether only fell short of this estimate by 7 per cent. only.

REVENUE.

Withdrawals from Treasury.

11. The provision in the Budget Estimate for withdrawals on Revenue Account was insufficient on the following lines:—

East Indian Railway, Main Line	28¾ per cent.
Eastern Bengal Railway	11½ ,,
Madras Railway	6½ ,,
South Indian Railway	9¾ ,,
Oudh and Rohilkhund Railway	4½ ,,

while the actual requirement fell short of the estimate on the—

Bombay, Baroda and Central India Railway Company by ...	14½ per cent.
and on the Scinde, Punjab and Delhi Railway Company by ...	11½ ,,

In the case of the East Indian Railway, the under-estimate was partly due to the following charges not having been provided for in the Budget :—

Adjustment on account of five condemned engines.
Hire of stock from foreign lines.
Jubbulpoor Line proportion of through traffic.
Heavy renewals to rolling-stock and permanent-way.

The Eastern Bengal Railway expenditure proved greater than was expected. On the Madras Railway the increase is owing to the extensive repairs and renewals of bridges, &c. The withdrawals on account of through traffic proportion of foreign lines was not estimated for on the South Indian Railway. For the Oudh and Rohilkhund Railway, the Bombay, Baroda and Central India Railway and the Scinde, Punjab and Delhi Railway, the estimates proved incorrect.

The Regular Estimate of withdrawals on Revenue Account was a fair approximation. The total actual withdrawals exceeded that estimate by Rupees 8,72,000, or 1·87 per cent. The actual net revenue exceeded the Budget Estimate by Rupees 23,91,000 or 6·09 per cent., and fell short of the Regular Estimate by Rupees 15,03,000, or 3·48 per cent. The chief individual difference between the Regular Estimate and the actuals appears in the case of Scinde, Punjab and Delhi Railway and the Oudh and Rohilkhund Railway. The Scinde, Punjab and Delhi Railway actuals fell short of the Regular Estimate by 39·6 per cent., and those of the Oudh and Rohilkhund Railway exceeded that estimate by 17·65 per cent.

Proceedings of the Madras Government, Public Works Department,
5th November 1875.

Summary of the Financial Operation of the Guaranteed Railways for the Official year 1874-75.

CAPITAL.

PAYMENTS INTO TREASURY.					Railway.	WITHDRAWALS FROM TREASURY.							
ACTUALS.			Budget Estimate.	Final Regular Estimate.		ACTUALS.			Budget Estimate.	Final Regular Estimate.	NET.		
Cash.	Transfer.	Total.				Cash.	Transfer.	Total.			Actuals.	Budget Estimate.	Final Regular Estimate.
RS. A. P.	RS. A. P.	RS. A. P.	RS.	RS.		RS. A. P.	RS. A. P.	RS. A. P.	RS.	RS.	RS. A. P.	RS.	RS.
4,70,943 9 4	30,88,353 10 10	35,59,297 4 2	34,00,000	29,35,000	East Indian Main Line...	2,99,479 4 0	20,94,212 13 5	23,93,692 1 5	7,00,000	20,40,000	—11,65,605 2 9	—27,00,000	—8,95,000
1,784 13 1	11,10,292 15 6	11,12,077 12 7	75,000	9,00,000	East Indian Jubbulpoor Line	......	45,056 2 11	45,056 2 11	1,00,000	50,000	—10,67,021 9 8	25,000	—8,50,000
....	8,09,252 4 3	8,09,252 4 3	7,50,000	7,80,000	Eastern Bengal	7,00,922 15 0	6,73,807 3 6	13,74,730 2 6	12,05,000	14,00,000	5,65,477 14 3	4,55,000	6,20,000
82,715 15 0	51,39,836 1 7	52,22,552 0 7	50,00,000	48,40,000	Great Indian Peninsula	16,00,000 0 0	3,34,260 2 0	19,34,260 2 0	21,00,000	19,10,000	—32,88,291 14 7	—29,00,000	—29,30,000
4,87,821 3 6	12,96,284 11 3	17,84,105 14 9	20,00,000	17,60,000	Bombay, Baroda and Central India ...	9,11,000 0 0	3,40,043 11 8	12,51,043 11 8	18,00,000	12,30,000	— 5,33,062 3 1	— 2,00,000	—5,30,000
1,04,218 2 9	16,50,966 4 2	17,55,184 6 11	15,00,000	15,95,000	Madras	10,35,000 0 0	20,306 11 10	10,55,306 10 10	13,06,000	10,70,000	— 6,99,877 11 1	— 1,94,000	—5,25,000
1,36,883 7 3	2,56,426 15 3	3,93,310 6 6	3,28,000	4,00,000	South Indian	20,88,517 13 11	11,582 0 7	21,00,099 14 6	43,78,000	21,50,000	17,06,789 8 0	40,50,000	17,50,000
17,970 6 0	5,45,460 12 10	5,63,431 2 10	7,18,000	6,00,000	Scinde, Punjab and Delhi	48,082 1 5	6,01,597 11 8	6,49,679 13 1	26,10,000	27,75,000	86,248 10 3	18,92,000	21,75,000
57,344 7 5	7,73,856 15 2	8,31,201 6 7	5,70,000	8,25,000	Oudh and Rohilkund	26,25,649 8 9	2,61,070 12 6	28,86,720 5 3	42,29,000	28,25,000	20,55,518 14 8	36,59,000	20,00,000
13,59,682 0 4	1,46,70,730 10 10	1,60,30,412 11 2	1,43,41,000	1,46,35,000	Total ...	93,08,651 11 1	43,81,937 6 1	1,36,90,589 1 2	1,84,28,000	1,54,50,000	—23,39,823 10 0	40,87,000	8,15,000

REVENUE.

PAYMENTS INTO TREASURY.								Railway.	WITHDRAWALS FROM TREASURY.				
ACTUALS.			Budget Estimate.	Final Regular Estimate.	NET.				ACTUALS.			Budget Estimate.	Final Regular Estimate.
Cash.	Transfer.	Total.			Actuals.	Budget Estimate.	Final Regular Estimate.		Cash.	Transfer.	Total.		
RS. A. P.	RS. A. P.	RS. A. P.	RS.	RS.	RS. A. P.	RS.	RS.		RS. A. P.	RS. A. P.	RS. A. P.	RS.	RS.
3,20,70,733 6 8	34,29,200 13 1	3,54,99,934 3 9	3,01,00,000	4[illegible],50 ,000	2,06,88,903 11 4	1,86,00,000	2,05,00,000	East Indian Main Line	1,00,00,000 0 0	48,11,030 8 5	1,48,11,030 8 5	1,15,00,000	1,43,50,000
10,66,680 1 1	15,61,146 7 9	26,27,826 8 10	19,80,000	26,80,000	14,31,831 1 1	7,80,000	15,00,000	East Indian Jubbulpoor Line	6,35,000 0 0	5,60,995 7 9	11,95,995 7 9	12,00,000	11,80,000
36,94,145 2 1	6,17,588 10 0	43,11,733 12 1	41,75,000	43,50,000	20,82,390 3 0	21,75,000	21,00,000	Eastern Bengal	14,50,000 0 0	7,79,343 9 1	22,29,343 9 1	20,00,000	22,50,000
1,95,36,970 7 4	19,30,208 14 8	2,14,67,179 6 0	2,09,00,000	2,11,00,000	83,67,304 15 5	83,00,000	82,80,000	Great Indian Peninsula	70,70,000 0 0	60,29,874 6 7	1,30,99,874 6 7	1,26,00,000	1,28,20,000
58,12,455 6 6	4,35,255 5 8	62,47,710 12 2	61,50,000	62,00,000	30,02,510 0 11	23,50,000	29,20,000	Bombay, Baroda, and Central India ...	19,45,000 0 0	13,00,200 11 3	32,45,200 11 3	38,00,000	32,80,000
59,74,494 10 6	2,09,117 1 2	61,83,611 11 8	65,96,000	61,25,000	19,20,490 3 9	26,00,000	20,00,000	Madras	24,30,000 0 0	18,33,121 7 11	42,63,121 7 11	39,96,000	41,25,000
10,77,277 0 10	6,492 7 2	10,83,769 8 0	9,82,000	11,00,000	4,03,384 11 9	3,62,400	4,00,000	South Indian	2,75,773 0 6	4,04,611 11 9	6,80,384 12 3	6,19,600	7,00,000
76,19,858 8 1	12,07,229 1 5	88,27,087 9 6	1,02,50,000	1,06,00,000	28,08,547 1 9	34,50,000	46,50,000	Scinde, Punjab and Delhi	38,67,493 15 4	21,51,046 8 5	60,18,540 7 9	68,00,000	59,50,000
24,93,041 11 4	2,31,670 4 1	27,24,711 15 5	23,46,000	26,00,000	9,41,256 4 5	6,38,000	8,00,000	Oudh and Robilkhund	7,33,056 3 2	10,50,399 7 10	17,83,455 11 0	17,08,000	18,00,000
7,93,45,656 6 5	96,27,909 1 0	8,89,73,565 7 5	8,34,79,000	8,96,05,000	4,16,46,618 5 5	3,92,55,400	4,31,50,000	Total ...	2,84,06,323 3 0	1,89,20,623 15 0	4,73,26,947 2 0	4,42,23,600	4,64,55,000

RESOLUTION.—The Note by the Accountant-General, Public Works Department, submitting a statement showing under Capital and Revenue the Indian transactions of the Guaranteed Railways for the official year 1874-75, as recorded in the accounts of the Public Works Department, explains the causes of the important differences that exist between the Budget and Regular Estimates and the actual results.

2. The delay that has been permitted to occur on the Scinde, Punjab and Delhi Railway in the adjustment of the charges, connected with the flood damages of 1871 and 1872 is very unsatisfactory, and no effort should be spared to settle the transaction at once. The Consulting Engineer explains that it was not possible to adjust the expenditure on the restoration works in the accounts of the year 1874-75; but the Government of India are of opinion that as the amount involved was so large as to seriously affect the Finance and Revenue Account of the Empire, the orders of Government should have been taken on the matter before the accounts for the year were closed.

3. This course should be followed in similar cases in future. It should be carefully borne in mind by the officers connected with the Guaranteed Railways that the transaction of these undertakings largely affect the general accounts and finances of the State, and that consequently the estimates should be prepared with great care, and every endeavour should be made to work up to the estimates as passed. All differences between estimates and actuals should be susceptible of the fullest explanation, and the Government of India expect to be supplied with explanation for all such differences with the final accounts of each year.

ORDER.—Ordered, that this Resolution be communicated to the Governments of Madras and Bombay, and to the Consulting Engineers to the Government of India at Calcutta, Lahore, and Lucknow for information and guidance.

Ordered also, that a copy be forwarded to the Financial Department, and the Accountant-General, Public Works Department, for information.

(Signed) J. J. McLEOD INNES, Lieut.-Colonel, R.E.,
Deputy Secy. to the Govt. of India.

No. 110. ORDER THEREON, 5th November 1875, No. 3,144.

RAILWAY, No. 22.

COMMUNICATED to the Consulting Engineer for Railways, and to the Examiner of Railway Accounts for information and guidance.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 111. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 1st November 1875, No. 592:—

WITH reference to the Proceedings of Government, under date 24th September 1875, No. 2,768, I have the honor to report, for the information of the Government

of India, that the number of powder-vans intended to be provided on the South Indian Railway is three. The Agent of the Madras Railway has been requested to arrange for the six iron brake-vans lately sanctioned being so constructed as to admit of their being used as powder-vans when required.

No. 112. ORDER THEREON, 5th November 1875, No. 3,145.

RAILWAY, No. 23.

ORDERED to be forwarded to the Government of India.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 113. (DOCKET No. 3,146, dated 5th November 1875.)

COPY of the above forwarded to the Government of India with reference to their letter No. 2,207, dated 4th September 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following papers :—

No. 114. From the District Engr., Madura, dated 18th October 1875, No. 2,919.

No. 114-A. From Major G. V. LAW, Special Executive Engineer, Pulni Hills, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Kodakanal, 11th October 1875, No. 42. (Through the District Engineer of Madura).

I HAVE the honor to forward a brief report on the Pulni Hills.

2. The only rideable access to the Upper Pulnis is to the south from Pereacolum. To the foot of the ghaut five miles, on to Shemboganur Saddle nine miles, on to Kodakanal three miles. Total length of actual ghaut twelve miles.

3. The country on each side of the ghaut is for many miles a series of unworkable precipices. The ghaut zigzags up a narrow spur, is excessively steep, and for the last three miles before reaching Shemboganur very dangerous. There is no room to lengthen the zigzags, or to widen, without running one into the other. Between the 6th and 9th milestones the ghaut in many places overhangs several hundred feet of precipice, one false step to eternity. Many accidents have occurred, and it is dangerous (except on foot) to meet the country traffic on ponies and asses.

4. After crossing the Shemboganur Saddle the danger ceases. Kodakanal towers 1,000 feet above, but the ghaut, though very steep, is wider and free from precipices.

5. Kodakanal is on the verge of the eastern commencement of the plateau of the Upper Pulnis. It has hitherto been chiefly a Mission station, to whom most of the houses belong. It has a beautiful winding lake, the gift of Mr. Levinge, late Madras Civil Service. The bund is about 40 feet high, and the waterspread a few yards short of four miles. There is no sluice, but the surplus water seldom fails and runs down the valley which separates Upper and Lower Pulnis to Pulni. The lower part of the valley on both sides is neatly terraced and irrigated, and I am informed that since the construction of the lake a second crop has resulted.

6. The soil of Kodakanal is chiefly black peat, over gravel, over clay, and the climate is wonderfully dry and bracing. Altitude about 6,800 above sea level. There are some beautiful building sites to the north of the lake still unoccupied, and but for the difficulties and dangers of the old ghaut it would ere this have been "the Malvern of Southern India."

7. Although funds have been available for opening out these hills during the last twenty-three years, little has as yet been done. The station itself is cut to pieces by numerous steep tracks, which, with the exception of a level drive round the lake, have been laid out without system or science. The only rideable communications beyond the station are the old ghaut, a steep up and down bridle-path to Poombarray, a short path to Fairy Falls, and part of the way to Vilputti.

8. The Upper Pulnis are divided from the Lower Pulnis by a deep valley, with Vilputti perched on precipices on the one side, facing Permaul Mullay, the highest point of the Lower Pulnis, on the other side. The Vilputti side is a series of precipices, but the broad spurs of Permaul Mullay stretch far into the valley and appear very favorable for ghaut tracing.

9. This valley runs nearly north and south and suddenly rises due south to the Neutral Saddle, lowest point between the Upper and Lower Pulnis. The main deep branch of the valley however after passing Vilputti abruptly turns to the west and runs up the Shemboganur Saddle, receiving "en-route" the waters of Kodakanal and other valleys down a series of picturesque waterfalls, and completely isolating the Shemboganur Range from the Upper Pulnis to which it belongs, although in altitude, climate, &c., it appears more properly to belong to the Lower Pulnis.

10. The Shemboganur Range is under five miles in length. It is linked to the Lower Pulnis eastward by the Neutral Saddle about 5,000 feet above sea level, and to the west by the Shemboganur Saddle about 6,000 feet altitude. The old ghaut climbs up a spur of its southern face, which mainly consists of magnificent precipices. To the north the slopes are less precipitous, and the Big Tiger Sholah stretches from its apex to the bottom of the deep valley mentioned in the preceding paragraph. The climate and vegetation remind me of Coonoor, and the northern slopes seem favorable for tea and coffee. There is not a single village on it. The old village of Shemboganur was decimated by small-pox years ago, and the survivors are said to have migrated to Vilputti.

11. The village of Vilputti is perched on precipices in a valley north-west of Kodakanal, and about the same elevation as Shemboganur Saddle, from which however it is entirely cut off by a range of small hills and spurs (higher than the valley of Kodakanal) which terminate in fearful precipices. The laden traffic from the old ghaut and

Pereacolum passes over Shemboganur Saddle, thence ascends to Kodakanal, crosses the lake bund, and thence rises over the hills and spurs mentioned above, and, after a mile or two of steep bridle-path, abruptly descends to the village of Vilputti. The valley of Vilputti is highly cultivated and terraced, and below the valley the terracing is continued to the very bottom of the deep valley separating the Upper and Lower Pulnis, and for a long way up the other side on the slopes of Permaul Mullay. It is the lower cultivation, some 2,000 feet below the village, that has been so improved by the construction of the Kodakanal lake.

12. The Local Fund Board are very anxious to connect the Pulni and Pereacolum Taluqs by a direct road over the hills, and I believe it was with this object that Colonel Fischer, R.E., before my arrival employed a Surveyer to trace the line mentioned in paragraph 6 of his letter, dated 25th April 1875—Proceedings, Madras Government, No. 1,421, dated 22nd May 1875. I, therefore, took the earliest opportunity of inspecting his work, and regret that I had to reject his line in toto.

13. I found that he had not attempted to connect Shemboganur Saddle with Vilputti, but had run a downward trace from thence for a few miles towards Pulni. From Shemboganur Saddle, instead of descending through "Big Tiger Sholah" to "Neutral Saddle", he ascended to the highest saddle of the Shemboganur Range passing east of Nandkonda Peak (as mentioned in Colonel Fischer's letter), from thence he worked into the Paulamullay valley, and attempted to zigzag down the spur of a native ghaut from Paulamullay to Pereacolum at the back of Moorgamullay. At the end of the 37th zigzag the trace abruptly ended some thousand feet above the plains, precipices on both sides, no ground to work on. He informed me that his whole trace was 1 in 15.

14. From Nandkonda Peak I scrambled to the Neutral Saddle (lowest point between Upper and Lower Pulnis), and "as predicated by you" it is the key to all future improvements. Colonel Fischer's line should have crossed this saddle instead of the Nandkonda 1,200 feet above it, and at once descended towards Pulni, and I trust that I have sufficiently made clear that Vilputti from altitude, position, and inaccessibility is entirely cut off from any direct route across the hills between Pulni and Savadanaputti.

15. The key to the position is "the Neutral Saddle", and from it the undermentioned lines must radiate :—

No. 1.—North. Descending ghaut to Pulni.

No. 2.—East. Ascending—high level line to open out the Coffee estates on the southern slopes of the Lower Pulnis.

No. 3.—South. Descending—the main Kodakanal ghaut towards Railway.

No. 4.—West. Ascending—the main Kodakanal ghaut through Big Tiger Sholah and over Shemboganur Saddle. Besides minor lines, of which one to open out the Paulamullay valley and join the heads of the Asses Pass and ghaut towards Pereacolum (at the back of Moorgamullay) would be most important, as coffee flourishes in the valley, and it abounds in fine timber.

16. In accordance with your instructions my attention has been directed in joining the Shemboganur and Neutral Saddes through the "Big Tiger Sholah." I found the sholah pathless, full of concealed precipices, and that 1 in 19 would hit below

the Neutral Saddle. I had therefore choice of ground, and after numerous trial traces have completed a line which, with a little blasting, can be easily opened to bridle-path.

17. I have been much delayed by the south-west monsoon, want of tools (especially billhooks), by cutting my knee open, which laid me up for two months, and, lastly, by want of funds; however, with an average of only nine or ten coolies, I have managed to open out $2\frac{1}{2}$ miles of bridle-path, and I hope by the end of this week to have completed a walkable path from saddle to saddle (about five miles).

18. As soon as practicable, I shall establish cooly lines at Neutral Saddle, but I am afraid that much cannot be done there during the north-east monsoon, for which I have especially reserved the section of ghaut between Shemboganur and Kodakanal. I have run some trial traces, and anticipate a fairly easy line with one or three zigzags.

19. The joining the Shemboganur and Neutral Saddles will be a great point in opening out the country. The tract marked on the map from Colakuvvay (now called Kodakanal) runs over the high range separating Vilputti from Kodakanal, and after joining the Vilputti path descends into the very depths of the valley and up to the Neutral Saddle. It is a ladder-like path, and I have only noticed foot traffic on it.

No. 115. ORDER THEREON, 5th November 1875, No. 3,147.

CIVIL WORKS, No. 8.

HIS EXCELLENCY the Governor in Council understands from this report that Major Law has successfully determined the sole mode of access to the Upper Pulnis for a cart road to be by way of a low saddle connecting the Upper and Lower Pulnis, which he names the Neutral Saddle, through Shemboganur on the existing Pereacolum Ghaut to Kodakanal, the altitudes of those places being respectively :—

	FEET.
Kodakanal	6,800
Shemboganur	6,000
Neutral Saddle	5,000

and the probable length of lines connecting them being Kodakanal to Shemboganur three miles, Shemboganur to Neutral Saddle five miles.

2. This length of eight miles will form a common head to all communications from the east, north, or south; whereof the first is that in which the public are chiefly concerned as being the approach from the South Indian Railway, for which funds will accordingly be provided in the Provincial Public Works Budgets.

The second or Pulni ghaut may be traced and carried out simultaneously from Local Funds; but no more should be undertaken till those two have at least been made opened to bridle-path throughout.

3. The work already done appears to be the trace of the five miles between Shemboganur and the Neutral Saddle, through a heavy sholah on gradients less than 1 in 19, varied to suit the nature of the ground and to avoid precipices. Major Law expects soon to have this important link of the communication opened as a bridle-path. The upper portion between Shemboganur and Kodakanal he has reserved for his work in the north-east monsoon when he cannot move far from head-quarters. He expects to make a tolerably easy line of it with one or three zigzags. His proposal to establish

cooly lines at the Neutral Saddle, and to continue operations downwards from it, east and north, after the monsoon, is approved. The entries in the Provincial Public Works Budget on account of the work of 1876-77 will be as follows:—

	RS.
1. Opening Ghaut from Kodakanal to Neutral Saddle to 12 feet in width, eight miles, at Rupees 2,000	16,000
2. Tracing and opening to bridle-path below Neutral Saddle ...	4,000
Total ...	20,000

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following papers :—

No. 116. From Lieutenant-Colonel R. A. ROBERTS, R.E., Superintending Engineer, Tanjore, to Colonel G. W. WALKER, R.E., Chief Engineer, Public Works Department, dated Tanjore, 26th April 1875, No. 404.

IN reference to the Notification in the *Fort St. George Gazette* of the 23rd April 1875, page 794, granting me furlough on private affairs, I have the honor to inform you that the following are the arrangements that I propose making for the conduct of the duties of this district on my giving over charge of the same.

2. I may mention that on Mr. Leggatt's being transferred from this district, I have, as a temporary measure, placed the charge of No. 4 Range in the hands of Executive Engineer Mr. O'Shaughnessy in addition to that gentleman's other duties as No. III. Range Officer.

3. As Mr. O'Shaughnessy will now, as senior officer of the department in the district, take over charge from me of this office, I have made the following arrangements in anticipation of your approval:—

No. I. Range to remain as at present under charge of Lieutenant Romilly, R.E.

No. II. Range as at present under Lieutenant Smart, R.E.

No. III. Range to be in temporary charge of Supervisor Mr. Stephens.

Sub-division of No. III. Range at present under charge of Mr. Stephens to be given to Mahadever Iyer, recently promoted to the grade of Supervisor.

No. IV. Range to continue under charge of Mr. O'Shaughnessy until another Range Officer is posted to the district.

No. V. Range to remain as at present under charge of Supervisor Mr. Littlewood.

4. As regards Mr. O'Shaughnessy's retaining charge of No. IV. Range, the principal object in this arrangement is to ensure an early settlement of several important questions which have been for a long time under inquiry in that range. Still, of course, it is very desirable that another Range Officer should be sent to this district as early as can possibly be managed.

5. You are well aware that this district returns, next to the Godavery, the largest revenue to Government of any district in the Presidency, and that in view to

the very important interests at stake, it is highly desirable that it should not be left any longer, than can possibly be helped, so greatly under-officered as is the case at present.

No. 117. From the same officer, dated Tanjore, 27th April 1875, No. 433.

WITH reference to G. O., No. 1,070 A, dated 16th April 1875, I have the honor to report that in a letter received this day, Executive Engineer Mr. Leggatt has informed me that on the 24th instant he handed over charge of No. IV. Range to Executive Engineer Mr. O'Shaughnessy.

2. I may mention that Mr. O'Shaughnessy retains at the same time charge of No. III. Range.

No. 118. From Lieutenant-Colonel R. F. OAKES, R.E., Superintending Engineer, Tanjore, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Tanjore, 18th October 1875, No. 1,993.

WITH reference to paragraph 2 of G.O., No. 2,825, dated 30th September 1875, I have the honor to state that on the transfer of Mr. Leggatt, Executive Engineer, from this district to North Arcot, ordered in G.O., No. 1,070 A, dated 16th April 1875, Mr. O'Shaughnessy took charge of the Negapatam Range from Mr. Leggatt in addition to the charge of his own range, under orders issued by Colonel Roberts, who informed the Government of the arrangement in his letter, No. 433, dated 27th April 1875. In that letter no special reasons are given for the arrangements proposed; but as the staff of the Executive Establishment of this district was, at the time, below the full complement, as indeed it still continues to be, the arrangement was perhaps the best that could have been made under the circumstances, though it would appear it might have been obviated had the arrangements for the charge of the ranges proposed in Colonel Roberts' letter to the Chief Engineer's address, No. 404, dated 26th April 1875, in connection with his own relief, been carried out in the case of Mr. Leggatt's relief.

2. Mr. O'Shaughnessy had charge of the two ranges for twenty-two days.

No. 119. ORDER THEREON, 5th November 1875, No. 3,148.

ESTABLISHMENT, No. 10.

APPLICATION will be made to the Government of India to pass the charge allowance claimed by Mr. O'Shaughnessy for twenty-two days. But it is not at all apparent why the arrangement made by Colonel Roberts in his letter of 26th April was altered the day following.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 120. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Government of India, P.W.D., dated 5th November 1875, No. 3,149.

ESTABLISHMENT, No. 11.

G. O., No. 2,067, dated 21st July 1875.
" " 2,825, " 30th Sept. "
" " 3,148, " 5th Nov. "

SIR, I am directed to forward the papers quoted in the margin, and under Section 25 (*d*) of the Acting Allowance Code to request the sanction of the Government of India to the admission of a charge allowance at the rate of Rupees 100 per mensem for twenty-two days to Mr. O'Shaughnessy, an Executive Engineer of the 3rd grade, who held charge of two ranges or divisions in the Tanjore district for the period in question.

No. 121. Read the following letter from Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 4th November 1875, No. 1,277 :—

WITH reference to G. O., No. 2,964, dated 16th October 1875, I have the honor to state that the revised Budget Estimate of Receipts and Expenditure for the current year in the Irrigation Department, required by the Government of India in their letter of the 7th October 1875, No. 618—32 A. G., exhibits the amounts shown below :—

	RS.
I.—Imperial Ordinary direct Irrigation receipts to be included as such in Finance Accounts	93,663
II.—Imperial Ordinary Irrigation expenditure in India including fluctuations in balances chargeable to Budget Grant, and after deduction of provision for expenditure in England and including refunds to Extraordinary Grant	28,56,600
III.—Extraordinary Irrigation expenditure in India including fluctuations in balances chargeable to the Budget Grant, and after deduction of refunds from Ordinary Grant	5,40,000

2. The estimate of receipts has been increased by Rupees 10,000, the estimated value of canal produce formerly credited to Local Funds but now to be credited to Irrigation receipts. There are also increases founded on actuals under miscellaneous.

G. O., No. 3,278, dated 19th November 1874.

No. 122. ORDER THEREON, 5th November 1875, No. 3,150.

IRRIGATION, No. 6.

Account.

ORDERED to be communicated to the Government of India with reference to letter, No. 618—32 A. G., dated 7th October 1875, from the Secretary to the Government of India, Public Works Department.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 123. (Docket No. 3,151, dated 5th November 1875.)

Copy of the above forwarded to the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 124. Read the following letter from Captain L. CONWAY-GORDON, R.E., Controller of Public Works Accounts, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 2nd November 1875, No. 123 W. :—

With reference to the Proceedings of Government, No. 2,926, dated 13th October, I have the honor to observe that the modifications proposed in that portion of the Public Works Code that relates to accounts are already before Government.

2. The only Chapter of the Public Works Code now remaining to be dealt with is Chapter XX., which *inter alia* treats of the exchange accounts of the Public Works Department with the other departments of Government, and this chapter I cannot proceed with until I am enabled to learn the views of the Accounts Officers of the other departments concerned.

3. From a letter I have just received from the Accountant-General, Public Works Department, on the subject, I learn that the whole subject of inter-departmental exchange accounts is now under the consideration of the Government of India, and that the Accountant-General, Public Works Department, will be glad to have the assistance which the conclusions that may be arrived at between the Controller of Public Works Accounts and the Officers of the Military and Civil Accounts Department of Madras will afford.

4. I am afraid that if the consideration of the subject is delayed, the result will be that in the discussion of this important question this Presidency will have no opportunity of expressing its views, and a system of exchange accounts will be ultimately prescribed for general adoption, in the settlement of which the Account Officers of Madras have had no voice.

No. 125. Order thereon, 5th November 1875, No. 3,152.

ACCOUNT, No. 4.

The Controller's letters will be communicated to the Public and Military Departments with the view to the necessary orders being issued in those departments to the Accountant-General and Controller of Military Accounts.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 126. Read the following letter from Captain L. CONWAY-GORDON, R.E., Controller of Public Works Accounts, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort Saint George, 1st November 1875, No. 122 W. :—

WITH reference to the Notification published at page 1,822 of the *Fort Saint George Gazette* of the 26th October 1875, in which Major Beatty is re-appointed as "Officiating Superintending Engineer, *vice* Major Hasted on privilege leave," I have the honor to request that you will be good enough to inform me whether the appointment is to be regarded as having retrospective effect from the date (11th October 1875) on which Major Hasted availed himself of the privilege leave, as otherwise deputation allowance can only be passed to Major Beatty from the date (26th October 1875) on which his re-appointment to officiate as Superintending Engineer was notified.

No. 127. ORDER THEREON, 5th November 1875, No. 3,153.

ESTABLISHMENT, No. 12.

MAJOR BEATTY'S appointment will be regarded as having effect from the date on which the vacancy caused by Major Hasted's leave occurred.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 128. Read the following Proceedings of the Madras Government in the Military Department, dated 7th October 1875, No. 4,879 :—

ABSTRACT.—Approving and communicating to the Public Works Department, in view to early arrangements being made for the provision of funds, plans and estimates for the erection of a platform, stop butts, &c., for the 8-inch proof gun at St. Thomas' Mount.

No. 129. ORDER THEREON, 5th November 1875, No. 3,154.

MILITARY WORKS, No. 2.

THE estimates amounting to Rs. 9,690 are sanctioned, and an immediate allotment of Rupees 5,000 is made by transfer from the Poonamallee Barracks. The balance, Rupees 4,690, will be provided, if it can be spent within the current year, on the usual demand being made at the commencement of its last quarter.

2. The repair estimate, amounting to Rupees 96, should be provided for from the repair grant at the disposal of the Superintending Engineer, Chingleput.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following papers :—

No. 130. From J. D. GRANT, Esq., Officiating District Engineer, Tinnevelly, to Lieutenant-Colonel J. MULLINS, R.E., Officiating Chief Engineer and Secretary to Government, Public Works Department, dated Palamcottah, 3rd August 1875, No. 57.

I HAVE the honor to forward a petition from Samynatha Iyer, Taluq Overseer's Writer in this district, requesting that arrears of pay for certain months may be passed to him.

2. The petition is lengthy, but the facts of the case are simply these.

3. Samynatha Iyer while attached to the Tanjore district on being found to have purchased land without permission was, under orders given in G. O., No. 2,906, of 10th October 1874, punished by suspension for three months, the period of which suspension expired on the 18th November 1874.

4. On the 20th May 1875, Samynatha Iyer entered on his duties as Taluq Overseer's Writer in this district, and a few days after forwarded to me a petition claiming his arrears of pay from 19th November 1874 to 19th May 1875, during which period he had been unemployed.

5. On inquiry I learnt from the District Engineer, Tanjore, that Samynatha Iyer had not reported himself for employment after his suspension, and I therefore refused to apply for the payment of the arrears.

6. Now, however, the Writer states that he did report himself to Colonel Roberts, but that his petition was not endorsed owing to a further communication having been made to Government on his case, which communication resulted in his being transferred. He now claims his pay from 19th November to 19th May, the period between the completion of his three months' suspension and of his employment in this district.

No. 384.

REFERRED for the observations of the Controller of Public Works Accounts.

OOTACAMUND, (Signed) J. O. HASTED, Major, R.E.,
12th August 1875. *Offg. Joint Secy. to Govt., P.W.D.*

No. 130-A. From Captain L. CONWAY-GORDON, R.E., Controller of Public Works Accounts, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 12th October 1875, No. 99 W.

IN returning the enclosed letter referred to me with the endorsement of the Officiating Joint Secretary to Government, No. 384, dated 12th August 1875, I have the honor to state that, under the peculiar circumstances of the case, Government may perhaps as in the case of Overseer Strinevasaloo Naidu, referred to in G.O., No. 1,703, of the 24th June 1874, be pleased to direct that Taluq Writer Samynatha Iyer shall receive subsistence allowance of one-fourth his salary while unemployed from the date (19th August 1874) on which he was relieved of his appointment in the Tanjore district to that (20th May 1875) on which he joined his new appointment in the Tinnevelly District (*vide* Public Works Code, Chapter IV., Section II., paragraph 24).

2. No pay has been drawn for Samynatha Iyer during the suspension of three months ordered in G.O., No. 2,906, dated 10th October 1874.

3. From nothing having been specially said on the subject, I conclude that the period during which Samynatha Iyer was unemployed is not to reckon towards pension. (*Vide* Public Works Code, Chapter IV., Section II., paragraph 29. Standing Order, No. 39 of 1871).

No. 131. ORDER THEREON, 5th November 1875, No. 3,155.

ESTABLISHMENT, No. 13.

THE Controller of Public Works Accounts is authorized to pass to Samynatha Iyer subsistence allowance of one-fourth his salary while unemployed from the 16th August 1874 to 20th May 1875; and this period, during which he was out of employment through no fault of his own, will be allowed to reckon towards pension. The time passed under suspension, however, cannot be so reckoned, it being laid down in paragraph 19, Section II., Chapter IV., of the Government of India Code that, "when suspension is adjudged as a penalty, the period is disallowed."

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 132. Read the following letter from Colonel C. H. DICKENS, R.A., Secretary to the Government of India, Public Works Department, (Establishment—Account), to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department, dated Simla, 29th October 1875, No. 391-E.—A. :—

I AM directed to state, for the information of the Government of Madras, that Mr. S. M. Johnson, Assistant Examiner of Guaranteed Railway Accounts, Madras, has been posted to Bombay as Assistant Examiner, and that Mr. G. Brown, Temporary Assistant Controller, 1st grade, has been posted to Madras as Assistant Examiner in his temporary rank.

2. I am to request that Mr. Johnson may, if possible, be directed to proceed to Bombay forthwith. Instructions will be issued in view to Mr. Brown's leaving for Madras without delay.

3. Mr. Brown's transfer is in the interests of the public service.

No. 133. ORDER THEREON, 6th November 1875, No. 3,156.

ESTABLISHMENT, No. 14.

COMMUNICATED to the Examiner of Railway Accounts who will direct Mr. Johnson to proceed to Bombay forthwith.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 134. Read the following endorsement of the Revenue Department, dated Fort St. George, 26th October 1875:—

Read the following Proceedings of the Board of Revenue, dated 16th October 1875, No. 2,883.

Read the following letters.

From R. J. MELVILLE, Esq., Acting Collector of the Chingleput District, to H. E. STOKES, Esq., Acting Secretary to the Board of Revenue, dated Sydapet, 23rd August 1875, No. 497:—

As directed in the Board's Miscellaneous No. 8,972, of the 19th December 1874, I have the honor to forward two statements showing the traffic on the Northern and Southern Sections of the East Coast Canal for the half-year ending 30th June 1875.

ENCLOSURES NOS. 1 and 2.—Statements.

From the same Officer, dated Sydapet, 23rd September 1875, No. 562.

As directed in the Board's Official Memorandum, No. 1,509, dated 17th instant, I have the honor to return the traffic statements therewith forwarded, accompanied by Enclosures A, containing the calculation of ton mileage, and in doing so to state that they were not sent with the statements, as they were not required by Government—*Vide* the enclosed copy of their memorandum, dated 20th April 1875, No. 429, forwarded to this office by the Superintending Engineer.

2. As regards paragraph 2, I beg to explain that Tolls and License fees are collected on the Northern and Southern Canals respectively, and that the alteration of "Tolls" into "License fees" in the first page of the statement for the former canal was made by the copyist by mistake. This has now been rectified.

3. Further, the total collections on the Northern Canal are only Rupees 22,055-8-0 and not Rupees 22,059-4-0 as remarked by the Board. The mistake arose in 4 Rupees having been erroneously entered instead of 4 Annas against furniture. This has now been corrected in red ink.

Enclosure No. 1.

Statement of Traffic, &c., on the Northern Canal, 91 *miles long, in the District of Chingleput, for the half-year ending* 30*th June* 1875.

Tolls. RS.	A.	P.	Boats.	Nature of Cargo.	Tonnage.	Ton Mileage.	Value of Goods. RS.	Number of Passengers.
368	2	0	1,506	Passengers...	1,472½	...	...	18,762
...	...	...	...	Horse	...	...	...	...
...	...	...	...	Cow or Calf	...	...	25	...
40	12	0	29	Sheep	163	...	2,505	...
...	...	...	...	Geese...	...	...	...	...
...	...	...	...	Fowls...	...	...	...	...
231	4	0	57	Paddy	925	...	19,669	...
223	12	0	54	Chilly	895	...	64,200	...
...	...	...	...	Tamarind	...	...	190	...
...	...	...	...	Green-gram	...	...	140	...
1	4	0	1	Tobacco	5	...	560	...
1	8	0	2	Cocoanuts...	6	...	20	...
2	8	0	2	Mangoes	10	...	193	...
1	4	0	1	Soapnuts	5	...	200	...
...	...	...	...	Groundnut	...	...	...	...
38	12	0	7	Strychnos (*Ettikottai*)...	155	...	930	...
...	...	...	...	Limes	...	...	...	...
...	...	...	...	Country oranges ...	...	...	...	...
...	...	...	...	Rattan fruits	...	...	...	...
1	0	0	1	Betel...	4	...	90	...
2	12	0	1	Gingelly-oil seeds ...	11	...	300	...
2	12	0	1	Lamp-oil seed	11	...	300	...
38	8	0	40	Vegetables	154	...	2,923	...
9	4	0	7	Chayroot	37	...	848	...
0	12	0	1	Acacia Arabica (Ale-root)(*Vulumpattai*)	3	...	20	...
1	0	0	1	Cocoanut plants ...	4	...	40	...
168	5	0	26	Palmyra leaves... ...	673¼	...	2,100	...
1	0	0	1	Sarsaparilla	4	...	126	...
...	...	...	...	Palm leaves	...	...	...	...
...	...	...	...	Mimusops Hexandra (*Palacody*)	...	...	...	...
0	4	0	1	Mimusops Bark (*Palaputtai*)	1	...	5	...
...	...	...	...	Mimusops leaves (*Pala Elai*)...	...	...	...	...
1	4	0	1	Teak-wood...	5	...	60	...
9	0	0	4	Broom	36	...	320	...
14	0	0	11	Bones	56	...	645	...
3	8	0	3	Straw...	14	...	48	...
5	12	0	3	Cassia Ariculata bark (*Avaram*)	23	...	245	...
9	8	0	7	Pandames odoratissimu leaves (*Tala* தாழையிலே	38	...	355	...
3,694	4	0	768	Shells	14,777	...	30,723	...
18	8	0	4	Rattan	74	...	2,027	...
12	12	0	2	Redwood	51	...	1,880	...
1,689	0	0	631	Firewood	6,756	...	67,858	...
4,798	12	0	658	Faggots	19,195	...	1,08,763	...
0	6	0	1	Gravel	1½	...	40	...
38	0	0	47	Cloth...	152	...	60,400	...

Statement of Traffic, &c., on the Northern Canal, 91 *miles long, in the District of Chingleput, for the half-year ending* 30*th June* 1875.—(*Concluded.*)

Tolls.	Boats.	Nature of Cargo.	Tonnage.	Ton Mileage.	Value of Goods.	Number of Passengers.
RS. A. P.					RS.	
4 12 0	1	Palmyra jaggery ...	19	...	625	...
... ...	...	Ghee	...	...	...	...
... ...	...	Indigo	...	...	100	...
... ...	...	Rattan baskets	...	...	50	...
119 8 0	117	Salt-fish	478	...	22,554	...
... ...	...	Cadjan mats	...	...	13	...
10,279 4 0	1,409	Salt	41,117	...	16,91,680	...
... ...	...	Chunam	...	...	...	...
1 8 0	1	Palmyra rafters ...	6	...	25	...
... ...	...	Cadjan boxes	...	...	80	...
... ...	...	Coir rope	...	...	300	...
111 4 0	46	Charcoal	445	...	6,257	...
1 0 0	1	Bricks	4	...	80	...
2 12 0	2	Tiles	11	...	34	...
0 4 0	1	Furniture	1	...	85	...
4 4 0	3	Sheep skin	17	...	1,080	...
... ...	...	Bullock horns	...	..	30	...
... ...	...	Hides...	...	...	...	...
... ...	...	Tent	...	...	...	...
17 12 0	5	Dubbers, empty ...	71	...	829	...
1 0 0	4	Fishing nets	4	...	70	...
... ...	...	Oil mills	...	...	40	...
... ...	...	Casks, empty	...	...	...	...
... ...	...	Teakwood planks ...	...	...	...	...
... ...	...	Redlead	...	...	...	...
28 4 0	7	Money, Remittance....	113	...	16,52,000	...
10 8 0	168	Rubbish boats, empty..	42	...	...	...
2 0 0	2	Wrecked goods... ...	8	...	230	...
10 8 0	10	Sundry articles... ...	42	...	4,660	...
19 11 0	58	Clay	78¼	...	85	...
0 4 0	1	Salt Weighing Machine.	1	...	100	...
11 12 0	7	Telegraph wires ...	47	...	11,468	...
22,055 8 0 Ton mileage.	5,722 28,02,121¼		88,222	...	37,61,223	18,762

SYDAPET,
23rd August 1875.

(Signed) R. J. MELVILLE,
Acting Collector.

ENCLOSURE No 2.

Statement of Traffic, &c., on the Sadras Canal, 41 *miles long, in the District of Chingleput, for the half-year ending* 30*th June* 1875.

License fees.	Boats.	Nature of Cargo.	Tonnage.	Ton Mileage.	Value of goods.	Number of Passengers.
RS. A. P.					RS.	
... ...	1,147	Passengers	6,006	...	...	30,011
... ...	...	Horse	...	...	...	...
... ...	...	Cow or Calf	...	...	...	...
... ...	7	Sheep	36	...	76	...
... ...	...	Geese...	...	...	...	...
... ...	...	Fowls	...	...	...	...
... ...	296	Paddy	1,706	...	26,837	...
... ...	4	Chilly	22	...	123	...
... ...	...	Tamarind	...	...	...	...
... ...	...	Turmeric	...	...	...	...
... ...	...	Tobacco	...	...	...	...
... ...	...	Cocoanuts	...	...	...	...
... ...	...	Mangoes	...	...	...	...
... ...	...	Soapnuts	...	...	...	...
... ...	...	Groundnut	...	...	...	...
... ...	...	Strychnos (*Ettikottai*)...	...	...	...	...
... ...	...	Limes	...	...	...	...
... ...	...	Country oranges ...	...	...	...	...
... ...	...	Rattan fruits	...	...	...	...
... ...	...	Betel...	...	...	...	...
... ...	...	Gingelly-oil seeds ...	...	...	...	...
... ...	..	Ginger	...	...	...	...
... ...	98	Vegetables	533	...	3,536	...
... ...	...	Chayroot	...	...	...	...
... ...	...	Acacia Arabica (Aleroot) (*Velumpattai.*)	...	...	...	...
... ...	...	Cocoanut plants ...	...	...	...	...
... ...	29	Palmyra leaves... ...	160	...	298	...
... ...	...	Cadjan leaves	...	...	...	...
... ...	...	Palm leaves				
... ...	...	Mimusops Hexandra (*Palacody*)	...	..	...	...
... ...	...	Mimusops Bark (*Palaputtai*)	...	...	...	...
... ...	...	Mimusops Leaves (*Pala Elai*)	... ...	... ...	... ...	... ...
... ...	...	Teak-wood	...	...	...	...
... ...	...	Broom	...	...	...	...
... ...	4	Bones	26	...	102	...
... ...	...	Straw	...	...	...	...
... ...	...	Cassia Ariculata bark (*Avarum*)	...	...	...	...
... ...	7	Pandames odoratissimu leaves (*Tala*) தாளபூயிலை	44	...	215	...
... ...	44	Shells	188	...	361	...
... ...	...	Ratan	...	...	...	...
... ...	...	Redwood	...	...	...	...
... ...	889	Firewood	4,759	...	22,392	...
... ...	107	Faggots	588	...	1,457	...
... ...	58	Granite	364	...	975	...
... ...	42	Cloth...	223	...	3,805	...

Statement of Traffic, &c., on the Sadras Canal, 41 *miles long, in the District of Chingleput, for the half-year ending* 30*th June* 1875.—(Concluded.)

License fees.	Boats.	Nature of Cargo.	Tonnage.	Ton Mileage.	Value of Goods.	Number of Passengers.
RS. A. P.						
... ...	35	Palmyra jaggery ...	189	...	181	...
... ...	...	Ghee	...	...	...	...
... ...	...	Indigo	...	...	...	...
... ...	...	Rattan baskets	...	...	...	...
... ...	75	Salt-fish	404	...	1,652	...
... ...	...	Cadjan mats	...	...	...	...
... ...	349	Salt	1,897	...	84,150	...
... ...	...	Chunam	...	...	...	...
... ...	...	Gunny bags	...	...	...	...
... ...	...	Cadjan umbrellas ...	...	...	...	...
... ...	...	Coir rope	...	...	...	...
... ...	5	Charcoal	29	...	221	...
... ...	...	Bricks	...	...	...	...
... ...	...	Tiles	...	...	...	...
... ...	26	Furniture	135	...	515	...
... ...	...	Sheep skin	...	...	...	...
... ...	1	Leather	5	...	20	...
... ...	...	Hides	...	...	...	...
... ...	...	Tent	...	...	...	...
... ...	...	Dubbers, empty ...	...	...	...	...
... ...	...	Fishing nets	...	...	...	...
... ...	...	Bottles, empty	...	...	...	...
... ...	...	Casks, empty	...	...	...	...
... ...	...	Teakwood planks ...	...	...	...	...
... ...	...	Redlead	...	...	...	...
... ...	...	Money, Remittance ...	...	...	...	...
... .	...	Rubbish boats, empty.	...	..	...	...
... ...	...	Wrecked goods ...	...	...	...	...
... ...	119	Sundry articles ...	645	..	959	...
894 0 0 Ton mileage.	3,342 3,69,548		17,959	...	1,47,875	30,011

SYDAPET,
23rd August 1875.

(Signed) R. J. MELVILLE,
Acting Collector.

ENCLOSURES Nos. 3 and 4.—Statements of Ton Mileage.

UNDER the explanation furnished in the foregoing letter, the Board resolve to submit to Government only the Traffic Statements Nos. 1 and 2 of the East Coast Canal for the half-year ending 30th June 1875.

(True Copies and Extract.)

(Signed) H. E. STOKES,
Acting Secretary.

TRANSFERRED to the Public Works Department.

(Signed) LORNE A. CAMPBELL,
Under Secretary to Government.

No. 135. ORDER THEREON, 6th November 1875, No. 3,157.

CIVIL WORKS, No. 9.

ORDERED to be forwarded to the Government of India in continuation of statements for the second half of 1874, which accompanied docket No. 1,701, dated 16th June 1875.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 136. (DOCKET No. 3,157-A., dated 6th November 1875.)

COPY of the above forwarded to the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 137. Read the following Memorandum from the Assistant Secretary to the Government of India, Public Works Department, (Civil Works—Irrigation,) to the Joint Secretary to the Government of Madras, Public Works Department, (Irrigation Branch,) dated Simla, 14th October 1875, No. 524—1 I. :—

THE undersigned is directed to invite attention to this Office No. 524 I., of the 18th August 1873, asking for a final report as to whether the modified schemes regarding the reservoirs projected in connection with the Toombuddra project are feasible or not, and to request the favor of an early reply thereto.

(Signed) G. T. SKIPWITH, Captain, R.E.,
Asst. Secy. to the Govt. of India.

No. 138. ORDER THEREON, 6th November 1875, No. 3,158.

IRRIGATION, No. 7.

ORDERED that the following letter be sent.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 139. From the Secretary to the Government of Fort St. George, Public Works Department, to the Chief Commissioner, of Mysore, dated 6th November 1875, No. 3,159.

IRRIGATION, No. 8.

From Secretary to Government, Public Works Department, Madras, to Commissioner of Mysore, No. 113, dated 7th January 1874.
From Officiating Secretary to Chief Commissioner, Mysore, to Secretary to Government, Public Works Department, Madras, No. 7,354-35, dated 12th January 1875.
From Secretary to Government, Public Works Department, Madras, to Chief Commissioner, No. 498, dated 20th February 1875.

SIR,—In reference to the letter of the Assistant Secretary to the Government of India, Public Works Department, dated 14th October 1875, No. 524-1 I., of which a copy is enclosed, I am directed to invite attention to the correspondence of this Government with the Government of Mysore marginally noted, and to request that as until the estimates asked for have been supplied the Government of Madras will be unable to furnish the Government of India with the report required, their transmission may be accelerated.

No. 140. Read the following Proceedings of the Madras Government in the Revenue Department, dated 29th September 1875, No. 1,435 :—

ABSTRACT.—*Kondakirla Ava Project in the Vizagapatam District.*—Referring to the Board of Revenue for report Proceedings, Public Works Department, forwarding certain papers regarding the — in view to its being ascertained what action has been taken on the subject with respect to the rights of Government.

No. 141. ORDER THEREON, 6th November 1875, No. 3,160.

IRRIGATION, No. 9.

COMMUNICATED to the District Engineer, Vizagapatam.

2. The out-door work to be done in connection with the Kondakirla Ava Project, is to be noticed, appertains to three distinct sub-divisions.

I.—The Kristamraz channel, which supplies the Ava and certain branch channels. The surveys and levels of this have been completed.

II.—The Ava itself. If the information regarding this, detailed in paragraph 16-4th of the memorandum communicated in Proceedings, Madras Government, 12th December 1873, No. 2,994, has not been obtained and put on paper, the District Engineer will explain why this has not been done.

III.—The existing and proposed irrigation under the Ava. This sub-division was the last to be taken up, and indeed the scope of the arrangements is dependent upon the settlement of the main issue, the rights of Government in connection with the Ava itself.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following :—

No. 142. No. 1,260.

Note by the Chief Engineer for Irrigation.

From Superintending Engineer, No. 2,134, 26th August.
To Superintending Engineer, No. 1,070, 16th September.
From Superintending Engineer, No. 2,941, 14th October.

THE following estimates have been submitted by the Superintending Engineer, Chingleput :—

1. Utakayapakum Tank. Repairs ...	Rupees 400
Ayacut area ...	Acres 24
Do. assessment ...	Rupees 77
Average revenue ...	„ 106
Highest do. ...	„ 136

Rupees 331 were expended on repairs in 1873-74.

The tank has a catchment basin of three-fourths of a square mile; it was badly damaged and breached in 1872 and again in 1874, the outlay incurred in 1873-74 having been confined to simple repairs. It has a calingulah 15 feet long with upright stones which are to be removed, and the future safety of the tank is to be secured by lowering 60 feet of the bund to 1 foot above F.T.L.

No. 3,009, 18th October 1875. 2. Mathaveram Tank. Repairs ... Rupees 750

Ayacut area	Acres 71
Do. assessment	Rupees 280
Average revenue	" 260

Expenditure on repairs in the last four years, Rupees 350.

The catchment basin is reported to be two-thirds of a square mile, which is small for the extent of the irrigation. The tank has an escape of some sort not specified, 25 feet in length, and 40 feet additional are to be provided at a cost of Rupees 5. As the escape is to be protected by nanel planting, double the length should be allowed. It is not stated in the report that the tank breached, but one of the sections indicates that it has been so damaged. The position of the tank has not been mentioned, neither has it been stated whether it is connected with other tanks above or below.

3. Goodoovanjairy Hissa Tank. Repairs	Rupees 2,050
Ayacut area	Acres 478
Do. assessment	Rupees 1,450
Average revenue...	" 1,425

Expenditure on repairs in the last four years, Rupees 719.

The tank has a catchment basin of 2 square miles, and a supply channel under regulation from the Narnaveram river. Care should be taken that the head-sluice of the channel is secure from being turned. The tank was breached in the cyclone, and the slopes of this and other tanks should be protected as soon as may be by an ample belt of tank grass or nanel. The tank has a 60 feet calingulah which will be converted into a flush escape, and will be supplemented by an escape formerly existing which will be re-opened and extended or levelled for a length of 300 feet. The bund is to be 4 feet above F.T.L., which with the large means of disposing of surplus will suffice.

4. Kanagumput Tank. Repairs	Rupees 190
Ayacut area	Acres 47
Do. assessment	Rupees 109
Average revenue	" 102

There has been no recent outlay.

The drainage basin is said to be a quarter of a square mile, which is small for the area of irrigation. Surplus having been discharged at a cut only 6 feet wide, the tank breached, and the estimate provides for levelling the ground for a length of 23½ feet. As this escape is to be planted, its length had better be made 50 feet.

Shallow tanks of this kind should not have interior slopes of 2½ to 1. Considerably more than one-half of the new earth-work shown in the bund section attached to the estimate is unnecessary. Much money will be saved by looking carefully to this

point; it is close planting with nanel or tank grass rather than flat slopes which is required.

5. Goodalore Small Tank. Repairs	...	Rupees 300
Ayacut area	...	Acres 24
Do. assessment	...	Rupees 153
Average revenue	...	„ 102

There has been no outlay for a long time.

The catchment basin is 1 square mile, and so the full ayacut shoud be irrigate d, there being no tank above. The tank is a number of the Madranticum group and breached in 1874. The proposed length, 84 feet, of the levelled ground for the discharge of surplus is to be planted, and so the length should be doubled.

6. Moorapakum Small Tank. Repairs	...	Rupees 550
Ayacut area	...	Acres 222
Do. assessment	...	Rupees 583
Average revenue	...	„ 243

This tank is in the Madranticum group.

The drainage basin above it is 3 square miles, of which two-thirds are intercepted by the large tank of the same village, and half the ayacut is reported to be swamped by the water-spread of the Madranticum Tank. These circumstances indicate that probably the abandonment of this small tank and the irrigation of the lands under the large tank would have been desirable. Some expenditure has been already incurred on emergency, and, as it is stated that there has been no previous outlay for some 20 years, the estimate may be passed; but, as has been before pointed out, groups of tanks should be taken up as groups, or as in the present case where the group is a very large one, sub-divisions of the group should be dealt with and the most made of the water-supply and existing means of storage. It is doubtful whether the discharge of surplus over a length of levelled ground will be a satisfactory arrangement for the disposal of so considerable a body of water as the maximum discharge from 3 square miles, but at any rate ample waterway which should be double that, 156 feet, proposed will be a great improvement on the altogether inadequate cut of 6 feet in width, by which surplus has hitherto been attempted to be got rid of; the breaching of the tank in 1874 was of course inevitable.

7. Koonamkoolathoor Tank. Repairs	...	Rupees 370
Ayacut area	...	Acres 125
Do. assessment	...	Rupees 365
Average revenue	...	„ 139

The catchment basin is 3 square miles, but there are three tanks* above which intercept part of the drainage. Half the ayacut is said to be swamped by the water-spread of the Mamputtoo Tank. The circumstances and requirements of the group should have been inquired into and provided for. There is sure to be waste of money on tanks which are not required or which, if retained, need reformation rather than repair, so long as connected irrigation works are treated as though they were isolated. Rupees 26 were spent on the repair of the slight damage sustained in 1872, and in 1874 the tank breached. There is an

* One of Nully.
Two of Pulidivakum.

escape opening of 33 feet, and 162 feet additional have been provided for. If the ground require the protection of tank grass, the length of opening must be doubled.

FORT ST. GEORGE,
26*th October* 1875.

A. DEC. SCOTT, Major, R.E.,
for *Chief Engineer for Irrigation.*

No. 143. ORDER THEREON, 6th November 1875, No. 3,161.

IRRIGATION, No. 10.
Account.

THE following estimates are sanctioned :—

Chingleput District.

		Revenue.
Utakayapakum Tank	Rs.	400
Mathaveram do.	„	750
Goodoovanjairy Hissa Tank	„	2,050
Kanagumput Tank	„	190
Goodalore Small Tank	„	300
Moorapakum Small Tank	„	550
Koonamkoolathoor Tank	„	370

2. The Superintending Engineer's attention should be given to the remarks in the foregoing review of the estimates, and it will be expected that after this monsoon full consideration will be given to the circumstances of all tanks in making proposals for outlay upon them. Sufficient allowance has now been made for the difficulty experienced in dealing with large numbers of damaged tanks; and estimates, the propriety of the provisions of which is frequently doubtful, cannot be sanctioned when the emergency is past.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 144. Read the following letter from Colonel H. DRUMMOND, R.E., Deputy Secretary to the Government of India, Public Works Department (Railway), to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department (Railway), dated Simla, 28th October 1875, No. 2,699 R. :—

I AM directed to acknowledge receipt of your letter, No. 2,800, of the 29th September 1875, and, in reply, to convey the sanction of the Government of India to the final revised estimate therewith submitted, amounting to Rupees 8,62,781, for the new bridge over the Cheyaur river on the North-West Line of the Madras Railway.

2. With reference to the statement that the sanction will lapse at the end of the eighth quarter after receipt of sanction, I am to inquire whether it is not possible to complete this bridge, which has now been some years in progress, in a shorter space than two years as now proposed.

3. The sanction accorded in paragraph 1 has been registered as No. 27 M R. of 1875-76, and cancels the sanction accorded in Public Works Department, No. 2,482 R., dated 8th December 1871.

No. 145. ORDER THEREON, 6th November 1875, No. 3,162.

RAILWAY, No. 24.

COMMUNICATED to the Consulting Engineer for Railways, with reference to G.O., No. 2,799, dated 29th September 1875.

Lieutenant-Colonel Shaw-Stewart will report on paragraph 2.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following papers :—

No. 146. From Colonel A. S. MOBERLY, R.E., District Engineer, Cuddapah, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Camp at Moodanoor, 29th September 1875, No. 1,440.

I HAVE the honor to submit, for the favorable consideration of Government, the accompanying copies of correspondence which has passed between the Controller of Public Works Accounts and myself.

2. There is a rule that the maximum to be drawn in the Public Works Department by an Executive Engineer is Rupees 1,250, but I know of no rule saying that the difference between the total laid down for a first-class* Executive Engineer and the pay† of Lieutenant-Colonel of Engineers shall not be drawn in the Military Department.

	RS.	A.	P.
*	600	0	0
†	1,002	4	0
	1,602	4	0
	1,250	0	0
	352	4	0

3. Agreeably to the permission given in paragraph 14 of G.O.G.G., No. 341, of 7th October 1870, I elected for the old rules, which allowed that the staff salary of an appointment should be granted in addition to the Military pay of the officer, and so I respectfully urge that I am entitled to the monthly salary of Rupees 1,602-4-0, and as Rupees 1,250 only may be drawn in the Public Works Department, that the balance Rupees 352-4-0 should be debited to the Military Department.

No. 611.

REFERRED to the Military Department.

OOTACAMUND,
5th October 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government, P.W.D.

No. 4,877.

REFERRED to the Controller of Military Accounts for report.

(By Order,)
(Signed) A. C. SILVER, Colonel,
Secretary to Government, M.D.

OOTACAMUND,
7th October 1875.

To the Controller of Military Accounts.

No. 147. Endorsement of the Secretary to Government, Military Department, dated Fort St. George, 26th October 1875, No. 5,180.

From Lieutenant-Colonel J. W. RIDEOUT, conducting the duties of Controller of Military Accounts, to Colonel A. C. SILVER, Secretary to Government, Military Department, dated Fort St. George, 23rd October 1875, C.

Letter from the District Engineer, Cuddapah, to the Secretary to Government, Public Works Department, No. 1,440, of 29th Sept. 1875, with one enclosure.
G.O.G., No. 3, dated 5th January 1869.
" " 340, " 20th December 1870.

In returning the papers as per margin, referred under your docket No. 4,877, dated 7th October 1875, I have the honor to state that, under the orders marginally noted, when the aggregate receipts of a Military Officer in Civil or Staff employ are less than his substantive Military pay, the difference is payable to him as a Military charge.

2. The maximum salary *plus* pay proper received by Colonel A. S. Moberly, R.E., District Engineer, Cuddapah, from the Public Works Department, Rs. 1,493-8-0, is however in excess of the Military pay and allowances of his rank (Rs. 1,002-4-0 less horse allowance) and he is not therefore entitled to any difference from the Military Department.

Transferred, with the referred papers, to the Public Works Department.

(Signed) A. C. SILVER, Colonel,
Secretary to Government, M.D.

No. 148. Order thereon, 6th November 1875, No. 3,163.

ACCOUNT, No. 4-A.

Communicated to the District Engineer, Cuddapah.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 149. Read the following endorsement of the Consulting Engineer for Railways, dated Madras, 30th October 1875, No. 587:—

From R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Madras, 28th October 1875, No. 1,107.

I have the honor to report, for your information, that at a meeting I attended this morning at which His Excellency the Governor and the Honorable Mr. Ellis were present, it was decided that, in view to admit of the progress of the alterations and decorations at the Royapoorum Terminus in order to make it suitable for the reception and entertainment of His Royal Highness the Prince of Wales, the running of trains between Royapoorum and Perambore should be discontinued from Monday the 1st proximo, until after the entertainment has taken place.

2. An advertisement to this effect has been inserted in all the Local Newspapers, and playcards will be posted at Royapoorum, Perambore, and Madras, announcing to the public the temporary closing of the station.

SUBMITTED for the information of Government.

(Signed) W. H. COAKER, Captain, R.E.,
for *Consulting Engineer for Railways.*

No. 150. ORDER THEREON, 6th November 1875, No. 3,164.

RAILWAY, No. 25.

APPROVED.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 151. Read the following letter from Lieutenant-Colonel R. F. OAKES, R.E., Superintending Engineer, Tanjore, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Tanjore, 23rd October 1875, No. 2,028:—

1 Estimate.
1 Specification.
1 Plan of Court-house.
1 „ of detail of verandah.
1 „ of dais.
1 „ of record rack.
1 „ of site.

WITH reference to G.O., No. 219, dated 19th April 1875, I have the honor to forward, for the sanction of Government, the accompanying plans and estimate, amounting to Rupees 11,900, for constructing a Court-house for the District Munsif of Trivadi in accordance with the standard plan sanctioned in G.O., No. 1,293, dated 7th May 1875.

2. It will be observed that the plan submitted differs slightly from the standard plan in respect to the dimensions of the various rooms, and the alterations would appear to have been made by Mr. O'Shaughnessy when Officiating District Engineer, as stated in the specification which accompanies the estimate, to suit the roof timbers, *i.e.*, for the better arrangement of the trusses. As the District Judge has countersigned the plan in token of his approval, and as the alterations are trifling, I forward the estimate for sanction.

No. 152. ORDER THEREON, 6th November 1875, No. 3,165.

CIVIL WORKS, No. 10.

THE estimate is sanctioned as the deviations from the standard plan are immaterial, and it is presumed that the

Superintending Engineer has satisfied himself as to the sufficiency of the foundations proposed, the nature of the soil on which they are to be laid not having been stated.

2. Provision for the work will if possible be made in the Budget of 1876-77.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following papers :—

No. 153. From J. D. GRANT, Esq., Officiating District Engineer, Tinnevelly, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Camp at Panagudy, 29th September 1875, No. 79.

I HAVE the honor to forward to you a revised estimate of Rupees 260 for the construction of the Rifle Range Stop Butts at Palamcottah.

1 Comparative Statement.
1 Abstract Estimate.

2. The work was originally carried out on an estimate sanctioned for Rupees 660, but it was scarcely complete when the slopes were washed down and destroyed by the rain in November 1874, and for its repair an estimate of Rupees 130 was prepared, and received sanction in G.O., No. 263-B, of 1st February 1875.

3. The rate for earthwork allowed in the revised estimate, *viz.*, 1 Anna 8 Pies, should, I think, suffice if the soil were at all softened by rain, but the Range Officer now reports that for that rate he cannot do the work till rain falls, the soil being so hard and no water procurable to moisten it, and as the butts will be required early in October, the work must go on now.

4. In addition to this compensation is required for land taken up, as the butts were originally constructed on the edge of Government land, and to preserve the distance of the targets from the firing platforms the widening must all be to the rear, and thus on private land.

5. A few more trees will have to be cut, and a slight addition is required for this purpose as, with other details, will be seen from the comparative statement I enclose.

6. It is with the greatest reluctance that I forward this estimate for the sanction of Government, but the work is of an emergent nature, and must go on without delay; every endeavour, however, will be used to reduce as much as possible the cost of its execution.

No. 639.

No. 153-A. MEMORANDUM.

ADVERTING to the letter from the Officiating District Engineer, Tinnevelly, No. 77, of 29th September 1875, the Chief Engineer observes that in paragraph 2 of the letter recorded with G.O., No. 263-B, dated 1st February 1875, the soil to be dealt with in the construction of the Rifle Range at Palamcottah is described as being "far less gravelly and stiff" than was supposed. While it is now stated to be "so hard" that

the rates allowed in the revised estimate are considered to be insufficient. This inconsistency should be explained.

OOTACAMUND, (Signed) G. W. WALKER, Major-General, R.E.,
8th October 1875. *Chief Engineer, P.W.D.*

No. 154. From J. D. GRANT, Esq., Officiating District Engineer, Tinnevelly, to Major-General G. W. WALKER, R.E., Chief Engineer, Public Works Department, dated Palamcottah, 16th October 1875, No. 85.

IN reply to your memorandum, No. 639, of 8th instant, calling for an explanation of the inconsistency between the description of the soil at the Rifle Butts as given by Mr. Rundall and myself, I have the honor to state that in reporting the soil to be "so hard" as to require a high rate for digging, I meant that owing to rain not having fallen for several months the soil was so hard that much difficulty was found in digging it and in breaking the lumps without water, which had to be carried from a long distance.

2. What Mr. Rundall's meaning was I am not so well able to explain, but from the circumstances I infer that what he intended to convey was that the natural slope of the soil was found to be greater than what he had provided for in his original estimate.

No. 155. ORDER THEREON, 6th November 1875, No. 3,166.

MILITARY WORKS, No. 2-A.

THE supplementary estimate of Rs. 130, disposed of in G.O., No. 263-B, of 1st February 1875, was evidently ill-considered as to rates and non-provision of compensation for land, and the discrepancy in the description of the soil noticed by the Chief Engineer is not satisfactorily explained. An additional charge of Rupees 80 is admitted. The balance is a Military charge (*vide* G. O., No. 2,925, of 13th October,) and will be adjusted accordingly. No specific allotment of Public Works Funds is required.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 156. Read the following letter from Colonel H. DRUMMOND, R.E., Deputy Secretary to the Government of India, Public Works Department, (Railway,) to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department, (Railway,) dated Simla, 28th October 1875, No. 2,704 R. :—

I AM directed to acknowledge the receipt of your letter, No. 2,815, dated the 29th September 1875 and enclosures, and, in reply, to convey the sanction of the Government of India to the revised estimate, amounting to Rupees 41,108, of the cost of converting 100 low-sided goods wagons belonging to the Madras Railway,

and of fitting them with additional springs so as to enable each to carry 9 tons of material for the Madras Harbour Works, subject to apportionment between Capital and Revenue as proposed, *viz.*, Rupees 13,500 to be charged to Capital and Rupees 27,608 to Revenue.

2. The sanction to the Capital portion of the charge has been registered in this office as No. 28 M.R. of 1875-76.

No. 157. ORDER THEREON, 6th November 1875, No. 3,167.

RAILWAY, No. 26.

COMMUNICATED to the Consulting Engineer for Railways with reference to G.O., No. 2,814, dated 29th September 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 158. Read the following letter from Colonel H. DRUMMOND, R.E., Deputy Secretary to the Government of India, Public Works Department (Railway), to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department (Railway), dated Simla, 27th October 1875, No. 2,687 R. :—

I AM directed to acknowledge the receipt of your docket, No. 2,487, dated the 1st September 1875, submitting the Review of the Revenue Account of the Madras Railway for the half-year ending 30th June 1874, and to make the following remarks :—

2. In Table A the average number of seats used per first-class vehicle is shown as 1·754, whereas in Table M I it is entered as 1·863.

3. *Table B.*—The average mileage of first-class single journey passengers obtained from the numbers, receipts and the fare per mile is 157·52 and not 129·11.

4. *Table D.*—The number of miles of single track, including sidings, should have been 915 $\frac{21}{24}$ instead of 914 $\frac{17}{24}$.

5. *Table E I.*—It appears from Tables A and D that the number of miles open on the 30th June 1874 was 856·75, and the length of sidings maintained during this period was 82·87 miles, whereas in this table the number of miles of rail, including sidings, is entered as 1899·75, there being a discrepancy of 7·52 miles. This should be explained.

6. *Table E II.*—In the review for the previous half-year, the average age o jungle sleepers measuring 10 ′ × 12 ″ × 6 ″ was entered as 2·10 years, whereas in the present one it is shown as 0·96 year. I am to inquire whether this last figure is correct.

No. 159. ORDER THEREON, 6th November 1875, No. 3,168.

RAILWAY, No. 27.

COMMUNICATED to the Consulting Engineer for Railways for explanation of the discrepancies noticed by the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 160. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 4th November 1875, No. 600 :—

I HAVE the honor to enclose herewith, for transmission to the Government of India, a list of the Capital Sanctions in force on the open line and Southern and Northern Extensions of the South Indian Railway for the quarter ending 31st December 1875.

SOUTH INDIAN RAILWAY.

List of Open Capital Sanctions for the Quarter ending 31st December 1875.

Bills for Works closed on the 30th September 1875 will be passed up to the 31st December 1875, but no work must be done after the 30th September 1875.

N.B.—Expenditure incurred on Works not in this list will not be passed unless formal sanction has been previously obtained.

Register Number and Date.	Authority.	Works.	Sanctioned Expenditure. Indian.	Sanctioned Expenditure. English.	Sanctioned Expenditure. Total.	* Expenditure as per Auditor's Books up to 31st July and 30th June 1875. Indian (Cash.)	English (Stores.)	Total.	Date on which sanction closes.
			RS.	RS.	RS.	RS.	RS.	RS.	
		Open Line.							
		Negapatam to Erode.							
	M. G.O., No. 3,211, of 13th Nov. 1874.	Levelling workshop yard at Negapatam.	...	...	3,000	...	...	...	31st Dec. 1875.
43 M. R. of 1874-75.	G. I. No. 491 R. of 22nd Feb. 1875.	Conversion of line from Negapatam to Trichinopoly, utilizing existing materials.	...	...	1,02,786	8,422	32,717	41,139	
4 M. R. of 1875-76.	G. I. No. 926 R. of 17th April 1875.	Steam Barge	...	...	60,000	...	...	...	
		Lines under Construction.							
		Southern Extension.							
		III.—Construction of line—							
		1. Earthwork	6,99,278	...	6,99,278	5,85,853	1,065	5,86,918	
		2. Bridgework—							
		(*a*) Minor bridges... ...	5,65,691	1,04,453	6,70,144	3,84,428	76,889	4,61,317	
		(*b*) Large bridges	4,98,296	3,92,284	8,90,579	2,78,818	90,434	3,69,252	
		3. Tunnels	...	...	...	...	...	...	
		4. Level crossings	1,47,454	...	1,47,454	29,925	6,509	36,434	
		5. Fencing	1,40,000	...	1,40,000	59,684	4,950	64,634	
		Temporary telegraph ...	12,000	...	12,000	9,612	23,131	† 32,743	
		IV.—Ballast and Permanent-way—							
		1. Ballasting	2,57,657	...	2,57,657	87,816	19	87,835	
		2. Permanent-way	5,38,738	33,77,890	39,16,628	1,87,363	23,60,390	25,47,753	
		V.—Stations and Offices.							
		1. Stations and buildings—							
		Trichinopoly	47,366	2,515	49,881	19,132	4,767	23,899	

		Collatoor	5,437	...	5,437	2,185	337	2,522	One year after the line has been opened for traffic.
		Manaparey	5,869	...	5,869	2,117	591	2,708	
		Vaiyampettay	5,440	...	5,440	37	...	37	
		Vadamadura	6,847	...	6,847	1,977	37	2,014	
		Dindigul	26,473	260	26,733	9,817	3,075	12,892	
		Amayanaickanoor ...	6,960	...	6,960	2,396	35	2,431	
		Sholavandan	7,828	...	7,828	5,217	369	5,586	
7 M. R. of 1873-74.	G. I. No. 1,377 G. R. of 7th August 1873.	Madura	47,706	319	48,025	16,989	312	17,301	
		Tiruparangundaram ...	5,524	...	5,524	1,394	...	1,394	
		Tirumungalum	5,696	...	5,696	104	32	136	
		Virdupatty	24,127	260	24,387	5,987	456	6,443	
		Sattoor	7,130	...	7,130	3,329	280	3,609	
		Covilpatty	7,822	...	7,822	5,666	77	5,744	
		Kadamboor	8,376	...	8,376	4,741	50	4,791	
		Maniachie	11,120	...	11,120	4,983	50	5,033	
		Tuticorin	75,808	270	76,078	40,633	1,149	41,782	
		Gengundan	6,129	...	6,129	2,843	97	2,940	
		Tinnevelly	40,110	254	40,364	20,197	357	20,555	
		2. Workshops and Store Buildings.	1,48,976	49,528	1,98,504	42,218	1,923	44,141	
		Temporary Workshops, Trichinopoly.	6,947	1,542	8,489	5,058	1,943	7,001	
		3. Staff quarters	1,46,655	...	1,46,655	14,741	2,669	17,410	
		Temporary do.	32,300	...	32,300	27,776	53	27,828	
		4. Station Machinery ...	75,128	84,917	1,60,045	21,388	43,530	64,918	
		VII.—Plant—							
		1. Engineering	1,21,927	94,345	2,16,272	4,762	1,01,675	1,06,437	
		2. Locomotive	1,656	14,847	16,503	...	...	...	
		3. Carriage and Wagon ...	828	7,423	8,251	...	...	...	
		4. Station and office furniture	75,600	37,900	1,13,500	577	10,892	11,469	
		IX.—Maintenance	2,58,015	...	2,58,015	...	...	...	
	C.E. No. 253 of 27th April 1875.	Kitchen and out-houses, Trichinopoly.	650	...	650	...	...	...	
		Northern Extension— Madras to Cuddalore.							
4 M. R. of 1873-74.	G. I. No. 306, G. R. of 25th Feb. 1873. G. I. No. 1,200 G. R. of 12th July 1873.	III.—Construction of line—							
		1. Earthwork	...	...	3,91,360	2,18,525	36	2,18,561	
		2. Bridgework—							
		(*a*) Minor bridges ...	...	...	2,11,000	1,22,579	1,579	1,24,158	
		(*b*) Large bridges ...	...	...	8,63,442	93,190	12,061	1,05,251	

* "Cash" up to 31st July. "Stores" up to 30th June."

† Includes cost of material received from England.

LIST OF OPEN CAPITAL SANCTIONS FOR THE QUARTER ENDING 31ST DECEMBER 1875.—(*Concluded.*)

Register Number and Date.	Authority.	Works.	Sanctioned Expenditure. Indian.	Sanctioned Expenditure. English.	Sanctioned Expenditure. Total.	* Expenditure as per Auditor's Books up to 31st July and 30th June 1875. Indian (Cash)	* Expenditure as per Auditor's Books up to 31st July and 30th June 1875. English (Stores.)	* Expenditure as per Auditor's Books up to 31st July and 30th June 1875. Total.	Date on which sanction closes.
			RS.	RS.	RS.	RS.	RS.	RS.	
		Northern Extension—Madras to Cuddalore.—(Concluded.)							
		3. Tunnels	...	...	...	...	...	...	
		4. Level crossings	...	...	41,700	5,377	846	6,223	
		5. Fencing	...	...	83,970	21,828	8,006	29,834	
		IV.—Ballasting and Permanent-way							
		1. Ballasting	...	...	22,06,870	16,349	...	16,349	
		2. Permanent-way	...	...		35,909	8,74,524	9,10,432	
		V.—Stations and Offices.							
		1.—Station and buildings—							
		Terminal works	...	...	6,03,200	22,241	...	22,241	
		Chetput	...	...	3,555	845	...	845	
		Sydapett	...	...	2,310	91	2	93	
		Guindy	...	...	1,775	278	...	278	
		St. Thomas' Mount ...	...	...	20,385	2,667	...	2,667	
		Palaveram	...	...	3,180	336	...	336	
		Vandalur	...	...	3,910	50	...	50	
		Guduvancherry	...	...	2,310	13	...	13	
		Singapermalcovil ...	...	...	2,025	...	...	...	
		Chingleput	...	...	22,645	...	...	...	
		Madrantakum	...	...	4,160	...	...	...	
4 M. R. of 1873-74.	G. I. No. 306, G. R. of 25th Feb. 1873. G. I. No. 1,200, G. R. of 12th July 1873.	Atcheravauk	...	...	2,435	...	...	...	has been opened for traffic.
		Ollakkoor...	...	...	1,650	...	...	...	
		Tindevanum	...	...	6,860	649	...	649	
		Chendoor	...	...	1,900	...	...	...	
		Vickravandy	...	...	2,310	...	...	...	
		Villapooram	...	...	4,780	...	...	...	
		Akadavilli	...	...	1,900	...	...	...	
		Panrooty	...	...	7,110	...	...	...	
		Nellicoopam	...	...	2,685	26	...	26	
		Tirupapuliyur	...	...	1,900	...	...	...	

		Cuddalore	...	...	28,515	267	...	267	One year after the line
		2.—Workshops and Store Buildings	...	...	13,450	4,627	32	4,659	
		3.—Staff quarters	...	...	68,490	10,730	...	10,730	
		4.—Station machinery ...	...	...	44,881	152	...	152	
		VII.—Plant—							
		1.—Engineering	...	...	60,000	9,208	38,305	47,513	
		2.—Locomotive	...	...	60,000	...	...	...	
		3.—Carriage and Wagon ...	...	...	60,000	...	...	...	
		4.—Station and Office furniture	...	...	31,700	602	3,616	4,218	
		IX.—Maintenance	...	...	1,61,550	...	...	...	
		Northern Extension—Cuddalore to Tanjore.							
40 M. R., of 1874-75.	G. I. No. 161 R of 19th Jan. 1875.	III.—Construction of line—							
		1.—Earthwork	...	...	2,94,638	43,698	378	44,076	
		2.—Bridgework—							
		(*a.*)—Minor bridges ...	...	...	3,60,916	4,982	...	4,982	
		(*b.*)—Large bridges ...	...	...	7,49,885	24,427	601	25,028	
		3. Tunnels	...	...	...	...	...	...	
		4. Level crossings	...	...	62,533	159	...	159	
		5. Fencing	...	...	1,05,995	1,119	7	1,127	
		IV.—Ballasting and Permanent-way—							
		1. Ballasting	...	...	1,12,171	35	...	35	
		2. Permanent-way	...	...	18,35,484	453	...	453	
		V.—Stations and buildings ...	...	...	3,51,214	4,885	113	4,998	
		VI.—Electric Telegraph (temporary), Madras to Tanjore.	...	...	13,075	10,314	25,625	†35,939	
		VII.—Plant	...	...	1,88,285	2,560	13,409	15,969	
		VIII.—Rolling Stock	...	...	‡22,15,800	...	...	‡8,04,901	
		IX.—Maintenance	...	...	1,07,805	...	...	...	
23 M. R. of 1875-76.	G. I. No. 2,254, R of 9th Sep. 1875.	Salt siding from Sydapett to Homes' Gardens, Salt Depôt ...	...	...	59,623	...	...	...	
	C. E. No, 210 of 12th April 1875.	Equipment of Telegraph Offices from Madras to Tanjore	4,954	5,603	10,557	7	2,627	2,634	

* "Cash" up to 31st July. "Stores" up to 30th June. † Includes value of material received from England. ‡ Includes the estimate and expenditure on the Southern Extension.

MADRAS,
4th November 1875.

(Signed) W. H. COAKER, Captain, R. E.,
for *Consulting Engineer for Railways.*

No. 161. ORDER THEREON, 6th November 1875, No. 3,169.

RAILWAY, No. 28.

ORDERED to be forwarded to the Government of India.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 162. (DOCKET No. 3,170, dated 6th November 1875.)

COPY of the above forwarded to the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 163. Read the following letter from Colonel H. DRUMMOND, R.E., Deputy Secretary to the Government of India, Public Works Department (Railway), to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department (Railway), dated Simla, 25th October 1875, No. 2,668 R. :—

I AM directed to acknowledge the receipt of your letter, No. 2,583, dated the 9th September 1875 (received on the 2nd October,) submitting papers and a memorandum by the Chairman of the Board of the Madras Railway Company, in which he claims to have proved the superiority of iron over wooden sleepers in a financial point of view, and saying that the Board request the orders of the Government of India, prior to submission and sanction of an indent, for pine sleepers for 71 miles of road between Palghaut and Beypore, the preparation of which is now deferred.

2. In reply, I am to say the Government of India do not agree in the opinion expressed by the Chairman, Madras Railway Company, that the sleepers would *all* remain serviceable during the twelve or twenty-four years respectively, indicating the term of life of the best sleepers. This opinion expressed by the Chairman appears to have been based on the Chief Engineer's statement that a *large proportion* of sleepers *if good and of an uniform quality as they should be* would last the entire ten years and would then have to be renewed all at once at the end of that term. These conditions are not generally fulfilled in practice. With both iron and wooden sleepers there is a considerable mortality in the early and last years of the term, and a smaller mortality in the intermediate period, whether the causes of that mortality be faulty material or faulty preparation, carelessness, accident, or other causes.

3. For these reasons the Government of India consider that the calculations of value of renewals by the method contained in Public Works Department, No. 779 R., of 20th March 1875, although possibly not critically correct, are nearer the truth than the method of calculation proposed by the Chairman.

4. The proposal of the Chairman to ignore in the comparison the existence of a full equipment of chairs and trenails and thus reduce the cost of wooden sleepers by Rupees 3,253 per mile is not understood. The question must be confined to the individual instance of the Madras Railway, not the merits of wood and iron sub-ways for Railways generally.

5. The Chairman, Madras Railway Company, objects to the calculations of value of timber and iron sub-ways contained in Public Works Department No. 779 of 20th March 1875, to which reference has already been made. The data on which these calculations were based were drawn from the statement made by the Chief Engineer, Madras Railway, furnished to the Government of India in Madras Government letter, No. 2,581, dated 10th September 1874. It is worthy of remark that the same figures were used by the Consulting Engineer at Madras. It is considered that both the Chief Engineer, Madras Railway, and Consulting Engineer at Madras should have possessed reliable information on this point.

6. I am directed to draw attention to the price of iron and timber sub-ways quoted by the Chairman, Madras Railway Company, and to say that apparently he must have made some error in his calculations, and probably has not included in his estimate all the items needed to form a comparison. It does not appear probable that iron sleepers at Madras can be obtained at rates very slightly in excess of the cost of wooden sleepers.

No. 164. ORDER THEREON, 6th November 1875, No. 3,171.

RAILWAY, No. 29.

COMMUNICATED for the information of the Madras Railway authorities. The indent for pine sleepers for the length between Beypore and Palghaut should now be submitted.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 165. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 2nd November 1875, No. 593 :—

WITH reference to the Order of Government, under date 25th October 1875, No. 157, I have the honor to submit the Review of the Revenue Account of the South Indian Railway for the second-half of 1874.

2. This has been prepared in accordance with the revised forms, and endeavours have been made to render the information as complete as possible. Owing to the amalgamation of the figures for the late Great Southern and Carnatic Railways, the

results differ somewhat from previous reviews, in which the former line was alone dealt with.

3. The following points call for remarks :—

Table A I.—The gauge of the line is entered as 3 feet $3\frac{3}{8}$, though the sections worked during the half-year under review were from Negapatam to Erode Junction, 167 miles of the 5 feet 6 inches gauge, and from Arconum to Conjeveram, 18 miles of the 3 feet 6 inches gauge.

Table E I—5.—The sum of the train mileages hauled by the different classes of engines does not correspond with the total, as the latter, in accordance with the latest instructions of the Government of India, includes mileage run for the locomotive and other departments.

The Agent has been requested to include the miscellaneous mileage run by the different classes in future returns.

Table G I.—The information here is not so complete as could be wished, but endeavours will be made to perfect it in succeeding reviews. The average mileage of carriage stock does not fairly represent the work done on Negapatam-Erode section, as the mileage run by the 3 feet 6 inches stock is very small, while the numbers included in column *c* are comparatively large.

4. As several errors have occurred in printing former reviews, I beg to suggest that the proof be sent to this office for examination before copies are struck off. In the mass of figures errors are occasionally made, which escape notice until the reviews are received in this office.

REVIEW OF THE REVENUE ACCOUNT OF THE SOUTH INDIAN RAILWAY FOR THE HALF-YEAR ENDED 31ST DECEMBER 1874.

Table A.—General Statement of working of half-year ending 31st December 1874.

I.—Description of Railway worked.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Gauge of Railway.	Length sanctioned.	Open mileage at the end of the half-year.				Mean Mileage worked.	Number of Stations opened at the end of the half-year.	Average distance between stations.	Total length of the following gradients :—			Steepest gradient worked by			
												Fixed power.		Locomotives.	
		Single.	Double.	Total.	Sidings.				$\frac{1}{100}$ and less.	$\frac{1}{101}$ to $\frac{1}{200}$	$\frac{1}{201}$ to $\frac{1}{300}$	Length.	Inclination.	Length.	Inclination.
FT. IN.	MILES.	MS.	MS.	MS.	MS.	MILES.		MILES.	M. CHS.	M. CHS.	M. CHS.			M. CHS.	
3 3 3/8	*617	185	...	185	15 3/8	185	25	7·7	3 56	10 9	12 19	...	...	3 56	$\frac{1}{100}$

Note.—The South Indian Railway is of the metre gauge, but the sections worked during the half-year were from Negapatam to Erode Junction 167 miles of the 5 feet 6 inches gauge, and from Arconum to Conjeveram 18 miles of the 3 feet 6 inches gauge.

* Open line	185 Miles.
Southern Extension	215 ,,
Northern do.	217 ,,
Total...	617 ,,

II.—Financial Results.

17	18	19	20	21	22	23	24	25	26
Total Capital authorized to be raised.	Total Capital paid up to end of half-year.	Total Capital withdrawn to end of half-year.	Total Capital expended on open mileage, inclusive of Rolling Stock.	Cost per Mile open.	Earnings.	Expenses.	Profits.	Per-centage of Profits on paid up Capital.	Per-centage of Profits on Capital expended on open mileage, inclusive of Rolling Stock.
£	£	£	£	£	RS.	RS.	RS.		
3,702,100	3,659,505	2,487,537	1,468,326	7,937	5,05,197	2,97,371	2,07,826	0·544	1·356

III.—Summary of General Results.

27	28	29	30	31	32	33	34	35	36	37
—	Coaching.			Goods.			Total including Sundries but excluding Steam Boat.			Total including Sundries and Steam Boat.
	Total.	Per Passenger Train Mile.	Per mean Mile open per Week.	Total.	Per goods Train Mile.	Per mean Mile open per Week.	Total.	Per total Train Mile.	Per mean Mile open per Week.	
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Earnings ...	2,83,751	3·583	58·992	2,08,065	2·488	43·257	5,05,197	3·102	105·030	5,05,197
Expenses ...	1,33,595	1·687	27·775	1,52,273	1·820	31·658	2,97,371	1·826	61·823	2,97,371
Profits	1,50,156	1·896	31·217	55,792	0·668	11·599	2,07,826	1·276	43·207	2,07,826
Percentage of expenses to earnings.	47·082	...	...	73·186	...	...	58·862	...	...	58·862

IV.—Traffic Earnings.

38	39	40	41	42	43
	Passengers or Tons of Goods carried.		Earnings.		
Description.	Number.	Per-cent. of Total Number and Total Tonnage.	Amount.	Per-cent. of Total Earnings from Coaching and from Goods.	Per-centage of Total Earnings contributed by each description of Traffic.
Coaching (Revenue Account, Abstract H).			RS.		
Passengers ... 1st-class	1,285	0·17	4,040	1·42	
Passengers ... 2nd ,, ...	7,550	0·97	7,318	2·58	
Passengers ... 3rd ,, ...	769,317	98·86	2,60,897	91·95	
Passengers ... 4th ,, ...	...	...	...	...	
Miscellaneous	...	...	11,496	4·05	56·17
Total...	778,152	100·00	2,83,751	100·00	
Less outstandings irrecoverable...	...	...	...	...	
Net Total...	...	...	2,83,751	...	
Goods (Revenue Account, Abstract I).	TONS.				
General Merchandize ... Special	21,333	33·40	51,537	24·77	
General Merchandize ... 1st-class	35,456	55·51	1,31,303	63·11	
General Merchandize ... 2nd ,, ...	48	0·08	79	0·04	
General Merchandize ... 3rd ,, ...	15	0·02	39	0·02	
General Merchandize ... 4th ,, ...	334	0·52	3,725	1·80	
General Merchandize ... 5th ,, ...	89	0·14	1,075	0·52	
Military Stores	15	0·02	163	0·08	
Railway Materials	6,584	10·31	19,239	9·22	41·18
Minerals	...	...	...	...	
Miscellaneous	...	...	905	0·44	
Total...	63,874	100·00	2,08,065	100·00	
Less outstandings irrecoverable...	...	...	...	...	
Net Total...	...	...	2,08,065	...	
Sundries, including Electric Telegraph...	...	...	13,381	...	2·65
Total Railway Earnings...	...	...	5,05,197	...	100·00
Steam Boat Traffic	...	...	...	...	...
Total, including Steam Boat...	...	...	5,05,197	...	...

V.—Working Expenses.

44	45	46	47	48	49	50	51	52	53
	Maintenance.	Locomotive	Carriage and Wagon.	Traffic.	General.	Special and Miscellaneous.	Total Railway Expenditure.	Steam Boat Expenses.	Total including Steam Boat.
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Amount	61,034	1,36,733	26,405	45,093	27,263	843	2,97,371	...	2,97,371
Per-centage of expenses of each department.	20·525	45·981	8·880	15·164	9·167	0·283	100·000	...	...

VI.—Haulage and Working.

54	55	56	57	58	59	60	61	62	63	64	65	66
TRAIN MILEAGE.			VEHICLE MILEAGE (EXCLUSIVE OF BRAKE VANS.)					GROSS TON MILEAGE (FREIGHT AND DEAD WEIGHT.)				
			Run for Public Traffic.					For Public Traffic.				
Traffic.	Miscellaneous.	Total.	Coaching.	Goods.	Total.	Miscellaneous.	Total including Miscellaneous.	Coaching.	Goods.	Total.	Miscellaneous (for Revenue purposes.)	Total including Miscellaneous.
162,852	4,267	167,119	1,304,486	1,400,219	2,704,705	34,535	2,739,240	12,677,005	15,081,227	27,758,232	506,744	28,264,976

VII.—Average Composition and Weight of Trains.

67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83
	COMPOSITION.													WEIGHT.		
	Coaching Vehicles.									Goods Vehicles.						
Nature of Trains.	1st-Class.	2nd-Class.	3rd-Class.	4th-Class.	Carriage Trucks.	Horse Boxes.	Luggage Vans.	Post Office Vehicles.	Brake Vans.	Goods Vehicles.	Cattle Vans.	Mineral Trucks.	Brake Vans.	Freight or live load.	Dead load exclusive of Engines and Tenders and Brakes.	Total.
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	TONS.	TONS.	TONS.
Passenger ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Goods	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mixed	0·339	0·809	6·030	...	0·029	0·136	0·666	...	0·166	8·587	0·011	...	0·040	34·828	95·468	130·296

VIII.—Average loads of Vehicles.

84	85	86	87	88	89	90
			AVERAGE WEIGHT			
Details.	Average carrying capacity.	Average contents of each Vehicle.	Of each Vehicle.	Of Freight.	Total.	Proportion per-cent. of Freight to Total Weight.
	No.	No.	TONS.	TONS.	TONS.	
COACHING—						
1st-Class	27·37	1·253	7·279	0·110	7·389	1·511
2nd ,, ...	38·80	2·298	6·939	0·201	7·140	2·896
3rd ,, ...	55·06	26·901	5·655	1·681	7·336	29·726
4th ,, ...	...	...	...	...	...	...
Carriage trucks	1	(a) 1·378	5·060	0·465	5·525	9 189
Horse boxes	3	0·963	7·090	0·421	7·511	5·938
Luggage vans	6 Tons.	0·183 Tons.	6·110	0·183	6·293	2·995
Post Office vehicles	...	...	...	...	...	...
GOODS—						
Goods vehicles	6·70 Tons.	2·829 ,,	5·594	2·829	8·423	50·572
Cattle vans	6 ,,	0·644 ,,	6·112	0·644	6·756	10·537
Mineral trucks	...	...	...	...	...	...

(a) Carriages were frequently conveyed in goods trucks, but the mileage was not returned separately.

TABLE B.

Statement showing in comparison the Coaching Traffic of the half-years ending 31st December 1873 and 31st December 1874.

Details.	Number.		Average fare per unit per mile.		Receipts.		Average Mileage.		Total unit mileage.	
	2nd half, 1873.	2nd half, 1874.	2nd half, 1873.	2nd half, 1874.	2nd half, 1873.	2nd half, 1874.	2nd half, 1873.	2nd half, 1874.	2nd half, 1873.	2nd half, 1874.
First-class Passengers—			PIES.	PIES.	RS.	RS.				
Single journey	999	1,138	10·52	12·060	3,173	3,585	57·99	50·156	57,931	57,078
Excess fares	...	...	...	...	139	142	...	...	2,770	2,272
Return journey	168	146	6·05	6·000	360	308	67·99	67·534	11,422	9,860
Troops and Police	...	1	...	12·000	...	5	...	86·000	...	86
Total ...	1,167	1,285	9·78	11·195	3,672	4,040	61·80	53·926	72,123	69,296
Season ticket passengers ...	240	...	5·63	...	180	...	2,048	...	6,144	...
Second-class—										
Single journey	5,829	6,227	4·83	5·173	5,435	5,943	37·05	35·420	215,969	2,20,564
Excess fares	...	..	...	...	241	284	...	...	10,505	10,906
Return journey	912	1,068	1·94	2·608	884	834	95·82	57·493	87,384	61,402
Troops and Police	66	135	4·32	4·432	125	232	84·14	74·474	5,553	10,054
Total ...	6,807	7,430	4·02	4·623	6,685	7,293	46·92	40·770	319,411	302,926
Season ticket passengers ...	480	120	2·34	0·975	100	25	4,096	4,920	8,192	4,920
Third-class—										
Single journey	633,949	702,190	2·13	1·960	2,00,425	2,18,643	28·48	30·504	18,056,157	21,419,757
Excess fares	...	...	...	...	343	461	...	...	35,989	44,256
Return journey	83,640	64,864	1·60	1·610	50,634	40,556	72·85	74·544	6,092,978	4,835,196
Troops and Police	980	2,263	1·54	2·026	684	1,237	86·95	51·784	85,206	117,187
Total ...	718,569	769,317	1·99	1·897	2,52,086	2,60,897	33·78	34·337	24,270,330	26,416,396
Season ticket passengers ...	...	...	...	...	...	...	...	...	...	...
Fourth-class—										
Single journey	...	...	...	...	...	...	...	...	...	...
Excess fares	...	...	...	...	...	...	...	...	...	...
Return journey	...	...	...	...	...	...	...	...	...	...
Troops and Police	...	...	...	...	...	...	...	...	...	...
Total ...	...	...	...	...	...	...	...	...	...	...
Season ticket passengers ...	...	...	...	...	...	...	...	...	...	...
Total—										
Single journey	640,777	709,555	...	...	2,09,033	2,28,171	28·61	30·579	18,330,057	21,697,399
Excess fares	...	...	...	...	723	887	...	...	49,264	57,434
Return journey	84,720	66,078	...	..	51,878	41,698	73·09	74·253	6,191,784	4,906,458
Troops and Police	1,046	2,399	...	...	809	1,474	86·77	53·075	90,759	127,327
Total ...	726,543	778,032	...	...	2,62,443	2,72,230	33·94	34·431	24,661,864	26,788,618
Season ticket passengers ...	720	120	...	...	280	25	19·901	41·00	14,336	4,920
	TON MILES.	TON MILES.								
Passengers' Luggage	5,437	5,399	57·42	65·025	1,672	1,829			...	...
Military Luggage	133	312	42·91	28·385	29	46			...	...
	No.	No.								
Public ... Carriages	62	86	23·12	22·387	572	769			4,752	6,599
Public ... Horses	273	233	16·72	13·946	1,582	1,546			18,165	21,288
Public ... Dogs, &c.	352	432	2·33	2·569	266	337			21,714	25,210
Military ... Carriages	...	...	...	...	...	...			...	...
Military ... Horses	23	1	8·83	18·000	57	8			1,238	86
Military ... Dogs, &c.	...	4	...	0·384	...	1			...	344
	TON MILES.	TON MILES.								
Parcels	12,491	13,902	87·70	85·763	5,772	6,210			...	...
	TRAIN MILS	TRAIN MILS	RS.	RS.						
Special trains	701	184	2·37	3·88	1,663	714			...	...
Miscellaneous	...	...	...	...	...	...			...	...
Post Office	...	...	...	...	...	...			...	...
Haulage and hire of Post Office Vehicles	...	...	...	...	...	...			...	...
Special trains	...	...	...	...	...	...			...	...
Parcels	...	...	...	...	36	36			...	...
			TOTAL ...		2,74,372	2,83,751			...	...
Less outstandings irrecoverable ...	...	...	...	...	...	...			...	...
			NET TOTAL ...		2,74,372	2,83,751			...	...

TABLE C.

Statement showing in comparison the Goods Traffic of the half-years ending 31st December 1873 and 31st December 1874.

Details.	Ton Miles. 2nd-half, 1873. Up.	Ton Miles. 2nd-half, 1873. Down.	Ton Miles. 2nd-half, 1874. Up.	Ton Miles. 2nd-half, 1874. Down.	Average rate per Ton per Mile. 2nd-half 1873.	Average rate per Ton per Mile. 2nd-half 1874.	Receipts. 2nd-half 1873.	Receipts. 2nd-half 1874.	Average Mileage. 2nd-half 1873.	Average Mileage. 2nd-half 1874.
					PIES.	PIES.	RS.	RS.		
MERCHANDIZE, GENERAL—										
Special	482,834	545,365	286,695	952,804	6·50	7·983	43,794	51,537	95·89	58·102
1st-class	848,165	1,185,213	949,551	1,141,547	11·95	12·056	1,26,601	1,31,303	59·49	58·977
2nd „	31,999	80,474	146	725	14·04	17·409	8,208	79	78·14	18·146
3rd „	17,238	41,825	35	258	18·03	25·667	5,545	39	70·40	19·600
4th „	1,832	10,346	9,535	20,070	24·00	24·155	1,522	3,725	74·71	88·638
5th „	7,314	13,602	2,990	1,576	40·12	45·214	4,371	1,075	73·39	51·303
Total ...	1,389,382	1,876,825	1,248,952	2,116,980	11·17	10·710	1,90,041	1,87,758	64·50	52·696
MILITARY STORES—	229	...	1,263	...	17·87	24·713	21	163	76·33	84·200
RAILWAY MATERIALS FOR CONSTRUCTION—	320,585	1,017	523,716	65,394	3·97	6·270	6,651	19,239	84·63	89·476
MINERALS—										
For the Public	...	...	...	...	...	...	...	...	...	...
„ the Company										
(*Construction only*)	...	...	...	...	...	...	...	...	...	...
TOTAL GOODS...	1,710,196	1,877,842	1,773,931	2,182,374	10·53	10·052	1,96,713	2,07,160	66·19	61·939
STORES CARRIED FREE FOR REVENUE—	108291·16	78010·14	99476·71	22994·89	...	...	...	...	11·950	43·147
	No.		No.		Average rate per Ton per Mile.				Estimated total Ton Mileage.	
LIVE STOCK—										
Horses	...		...		...	...	...	...	...	...
Cattle	24		53		30·343	30·382	74	144	468·25	910·000
Sheep, &c.	1,808		1,218		32·750	47·519	64	63	375·200	254·550
MILITARY LIVE STOCK—										
Horses	...		...		...	...	...	...	...	...
Cattle	...		...		...	...	...	...	...	...
Sheep, &c.	...		...		...	...	...	...	...	...
RENTS AND DEMURRAGE, WHARFAGE, &c.—	...		...		...	...	564	698	...	...
INTEREST ON OUTSTANDING BILLS—	...		...		...	...	...	...	...	...
MISCELLANEOUS—	...		...		...	...	...	...	...	...
				TOTAL ...	...	...	1,97,415	2,08,065		
Less outstandings irrecoverable					...	...	...	...		
				NET TOTAL ...	...	...	1,97,415	2,08,065		

TABLE C—(1).

Comparative Statement showing the Weight and Earnings of the Principal Commodities carried during the half-years ending 31st December 1873 and 31st December 1874.

Description.	Quantity.		Receipts.		Increase in Quantity.	Decrease in Quantity.	Increase in Receipts.	Decrease in Receipts.
	2nd-half, 1873.	2nd-half, 1874.	2nd-half, 1873.	2nd-half, 1874.				
	TONS.	TONS.	RS.	RS.	TONS.	TONS.	RS.	RS.
Areca Nuts	1,016	838	4,731	3,314	...	178	...	1,417
Cloth	1,139	1,091	6,452	5,287	...	48	...	1,165
Curry Stuff	1,530	1,923	8,026	8,797	393	...	771	...
Fruit and Vegetables	1,129	1,384	5,920	6,610	255	...	690	...
Grain of all sorts...	19,046	19,722	49,385	50,464	676	...	1,079	...
Granite Stones	2,486	9,193	4,049	7,195	6,707	...	3,146	...
Hides	417	434	2,327	2,102	17	...	...	225
Oil and Ghee	655	694	3,428	3,326	39	...	...	102
Oil-cakes	612	1,258	2,670	5,944	646	...	3,274	...
Salt	7,907	6,846	41,499	36,484	...	1,061	...	5,015
Seeds of all kinds	2,285	3,954	11,094	18,161	1,669	...	7,067	...
Sundries	11,119	9,459	42,478	37,889	...	1,660	...	4,589
Tobacco	406	495	2,205	2,348	89	...	143	...
Total ...	49,747	57,291	1,84,264	1,87,921	7,544	...	3,657	...

TABLE D.

Statement of Mileage maintained by Revenue.

Details.	2nd-Half of 1873. Departmentally	By Contract.	Total.	2nd-Half of 1874. Departmentally	By Contract.	Total.	Total Increase	Total Decrease
	MILES.	MILES.	MILES.	MILES.	MILES.	MILES.	MILES.	MILES.
1. Mean miles of line maintained by Revenue. Single	185	...	185	185	...	185	...	...
2. Mean miles of line maintained by Revenue. Double	...	...	...	...	...	...	...	...
3. Total ...	185	...	185	185	...	185	...	...
4. Mean miles of sidings maintained	$15\frac{3}{8}$	...	$15\frac{3}{8}$	$15\frac{3}{8}$	...	$15\frac{3}{8}$	...	...
Total ...	$200\frac{3}{8}$	...	$200\frac{3}{8}$	$200\frac{3}{8}$	...	$200\frac{3}{8}$	...	...
5. Mean miles of single track including sidings	$200\frac{3}{8}$	...	$200\frac{3}{8}$	$200\frac{3}{8}$	...	$200\frac{3}{8}$	...	...

TABLE D.—I.

Statement of Train Mileage.

Details.	Train Miles run. Traffic Department	Locomotive Department.	Maintenance Department.	Total.	Hours of Assisting Engines. H.	M.	Shunting, Piloting, &c. H.	M.	Miscellaneous Services. H.	M.
2nd Half, 1873 ... Passenger	...	...	...	...	...	...	...	...	...	...
Goods	...	...	...	...	...	...	...	...	...	...
Mixed	1,40,250	629	5,201	1,46,080	6	35	6,215	53	1,437	40
Total ...	1,40,250	629	5,201	1,46,080	6	35	6,215	53	1,437	40
2nd Half, 1874 ... Passenger	...	...	...	...	...	...	...	...	...	...
Goods	...	...	...	...	...	...	...	...	...	...
Mixed	1,62,852	1,762	2,505	1,67,119	12	50	7,485	8	1,667	15
Total ...	*1,62,852	1,762	2,505	1,67,119	12	50	7,485	8	1,667	15
Increase in 1874. Passenger	...	...	...	...	...	...	...	...	...	...
Goods	...	...	...	...	...	...	...	...	...	...
Mixed	22,602	1,133	...	...	6	15	1,269	15	229	35
Total ...	22,602	1,133	...	21,039	6	15	1,269	15	229	35
Decrease in 1874. Passenger	...	...	...	...	...	...	...	...	...	...
Goods	...	...	...	...	...	...	...	...	...	...
Mixed	...	...	2,696	...	...	...	...	...	...	...
Total ...	...	...	2,696	...	...	...	...	...	...	...

* Passenger train mileage	*Nil.*
Proportion of mixed train mileage due to passengers	79,184
Total ...	79,184
Goods train mileage	*Nil.*
Proportion of mixed train mileage due to goods	83,668
Total ...	83,668

TABLE E.

Maintenance of Way, Works, and Stations.

—	2nd-half of 1873. Total.	2nd-half of 1874. Total.	2nd-half of 1874. Increase.	2nd-half of 1874. Decrease.
Mileage of line maintained	185	185	...	...
Mileage of single track, including sidings ...	$200\frac{3}{8}$	$200\frac{3}{8}$	...	...
Train mileage	140,250	162,852	22,602	...
Ton mileage	25,440,725	28,264,976	2,824,251	...

Details.	2nd-half of 1873. Total.	2nd-half of 1874. Total.	2nd-half of 1874. Increase.	2nd-half of 1874. Decrease.	Per mile of Line maintained.	Per mile of track including sidings.	Per Train Mile.	Per 1,000 Ton Miles.
GENERAL SUPERINTENDENCE—	RS.	RS.	RS.	RS.	RS.	RS.	AS.	RS.
Engineers' Salaries and Allowances ...	5,753	5,464	...	289	29·535	27·269	0·537	0·193
Subordinate Superintendents' salaries and allowances, including overtime	3,450	3,990	540	...	21·568	19·912	0·392	0·141
Office Expenses	2,331	2,275	...	56	12·297	11·354	0·224	0·081
MAINTENANCE AND RENEWAL OF PERMANENT-WAY—								
Wages	21,318	19,888	...	1,430	107·503	99·254	1·954	0·703
Materials	21,427	22,024	597	...	119·049	109·913	2·164	0·779
REPAIRS OF BRIDGES, &c.—WAGES AND MATERIALS—								
Bridges and Tunnels	1,460	1,301	...	159	7·032	6·493	0·128	0·046
Miscellaneous	531	1,173	642	...	6·341	5·854	0·115	0·042
REPAIRS OF STATIONS AND BUILDINGS—WAGES AND MATERIALS—								
Repairs of all except staff quarters... ...	2,516	4,403	1,887	...	23·800	21·974	0·433	0·156
Do. of staff quarters	196	319	123	...	1·724	1·592	0·031	0·011
MAINTENANCE BY CONTRACT—								
Amount paid to Contractors	...	...	...	...	...	...	...	...
Materials supplied by the Company ...	...	...	...	...	...	...	...	...
UNCLASSIFIED EXPENDITURE—								
Plantations	...	...	...	...	...	...	...	...
Tools and Plant	39	338	299	...	1·827	1·687	0·032	0·012
Loss on Stores, &c.	13	5	...	8	0·027	0·025	0·000	0·000
Total ...	59,034	61,180	2,146	...	330·703	305·327	6·010	2·164
Less ...	...	146	...	146	0·789	0·728	0·014	0·005
Net Total ...	59,034	61,034	2,000	...	329·914	304·599	5·996	2·159

TABLE E.—I.

Maintenance of Way.

Rails.

	Details.	Double headed 68 lbs. to the yard.	Flat footed 35½ lbs. to the yard.	Total.
1	Miles of rail in way, including sidings	359·84	40·92	400·76
2	Average age of rails in way at the middle of the half-year...	10 years.	9·75 years.	10 years.
3	Rails inverted ... Number	1,379	25	1,404
	Rails inverted ... Miles	2,758	0·04	2·798
4	Proportion inverted per mile of (1) rail	·0074	0·00098	0·0068
5	Rails renewed ... Number	118	12	130
	Rails renewed ... Miles	0·236	0·02	0·256
6	Proportion renewed per mile of (1) rail	·00064	·00049	·00062
7	Average number of tons hauled over each kind of rail in the half-year	166,028	28,713	152,006
8	Thousands of tons hauled on an average over each kind of rail during the average age of rails in way (2.)	2,974	560	2,727

TABLE E—II.

Maintenance of Way.

Sleepers.

	Details.	Negapatam-Erode Section.		Arconum-Conjeveram Section.		
		Creosoted pine, 10′ × 10″ × 5″	Pairs of Iron pot-sleepers.*	Teakwood.	Longitudinal.	Iron.
		No.	No.	No.	No.	No.
1	Number of sleepers in way including sidings	128,506	187,854	43,021	127	56
2	Average age of sleepers in way at the middle of the half-year	13 years.	7¼ years.	9¾ years.	9¾ years.	4¼ years.
3	Number renewed	3,466	56	358	...	...
4	Do. per cent of (1)	2·69	·029	·832	...	...

* Two round cast iron pots weighing 80 lbs. each united by wrought-iron tie-bar weighing 28 lbs.

TABLE F.

Locomotive Department Expenses.

—	2nd-half, 1873.	2nd-half, 1874.		
	Total.	Total.	Increase.	Decrease.
Train mileage	140,250	162,852	22,602	...
Ton mileage	25,440,725	28,264,976	2,824,251	...

Details.	2nd-half, 1873.	2nd-half 1874.			Per train mile.	Per 1,000 Ton Miles.
	Total.	Total.	Increase.	Decrease.		
	RS.	RS.	RS.	RS.	AS.	RS.
General Superintendence.—						
Salaries of Superintendence and Assistants, including allowances	4,343	5,904	1,561	...	0·580	0·209
Do. of Subordinate do. including allowances ...	8,649	8,665	16	...	0·852	0·306
Office Expenses	3,454	3,622	168	...	0·356	0·128
Running Expenses.—						
Wages of Drivers and Firemen, including overtime ...	15,918	16,647	729	...	1·635	0·589
Fuelling, cleaning, and looking after Engines	1,505	1,348	...	157	0·132	0·048
Contingent Expenses	1	4	3	...	0·000	0·000
Fuel.—						
Coal	42,643	65,080	22,437	...	6·394	2·303
Coke	3,577	28	...	3,549	0·003	0·001
Patent Fuel	334	...	...	334	...	...
Wood	16,555	7,950	...	8,605	0·781	0·281
Water (including Wages and Stores)	1,042	1,187	145	...	0·117	0·042
Oil, Tallow, and other Stores	2,413	2,499	86	...	0·245	0·088
Maintenance and Renewals.						
Wages including overtime	5,388	6,164	776	...	0·606	0·218
Materials	17,622	17,635	13	...	1·733	0·624
Payments to other Lines.—						
Unclassified Expenditure—						
Total ...	1,23,444	1,36,733	13,289	...	13·434	4·837
Less ...	...	...	...	...	...	...
Net Total ...	1,23,444	1,36,733	13,289	...	13·434	4·837

—	Fuel consumed.							
	Coal.	Coke.	Patent Fuel.	Wood.	Average Consumption per train mile.		Average Consumption per 1,000 ton miles.	
					Coal, Coke, and Patent Fuel.	Wood.	Coal, Coke, and Patent Fuel.	Wood.
	Tons.	Tons.	Tons.	Tons.	lbs.	lbs.	lbs.	lbs.
Quantity consumed during the 2nd-half of 1873	1,420	84	11	2,474	25·510	41·658	136·155	222·347
Do. do. of 1874 ...	2,342	1	...	1,434	32·227	19·725	185·683	113·645
Increase in 1874	922	...	...	...	6·717	...	49·524	...
Decrease in 1874	...	83	11	1,040	...	21·933	...	108·702

TABLE F.—I.

Locomotive Power.

		Passenger.	Goods.	Goods.	Tank. Negapatam to Erode.	Tank. Arconum to Conjeveram.	Total.
Locomotive... ...	1. Wheels coupled	4	6	4	4	4	
	2. Weight on driving axle ...	9 tons.	10½ tons.	9½ tons.	8 tons.	3·15 tons.	
	3. Total weight in steam, exclusive of tender.	23½ ,,	29½ ,,	28 ,,	15 ,,	14·15 ,,	
1. Number of Locomotives erected and made over to Locomotive Department		9	6	4	2	4	25
2. Average number of Locomotives constantly under repairs and renewals		1·44	0·91	0·96	0·06	1·00	4·37
3. Number of Locomotives laid by as spare or hired out to other lines		...	...	...	...	...	...
4. Average number of Locomotives at work, [1-(2 × 3)]		7·56	5·09	3·04	1·94	3·00	20·63
5. Train miles hauled by each class of Locomotives at work (4)		81,497	47,564	26,902	*Nil.*	6,889	167,119
6. Average train miles hauled by each Locomotive at work (4)—							
Per half-year		10,780	9,344	8,849	...	2,296	8,101
Per day		58	51	48	...	12	44
7. Weight of coal, &c., used per train mile ...	To be separated, if possible, among the classes of Locomotives.	30·21 lbs.	44·28 lbs.	39·74 lbs.	...	...	...
8. Weight of wood used per train mile		...	...	...	...	57·93	...
9. Average gross weight of the trains hauled by each class of Locomotives		83 tons.	204 tons.	124 tons.	...	64 tons.	130·296

—	Number of Miles per hour. Passenger. Trains.	Goods Trains.	Through mixed Trains.	Local mixed Trains.	Arconum-Conjeveram Section mixed Trains.
			MILES.	MILES.	MILES.
10. Average speed between Stations...	...	...	28	21	14·10
11. Average through speed	...	...	21	14	12·5

TABLE G.

Carriage and Wagon Expenses.

—		2nd-half of 1873. Total.	2nd-half of 1874. Total.	Increase.	Decrease.
Train mileage		140,250	162,852	22,602	...
Vehicle Mileage.	Coaching	1,133,704	1,304,486	170,782	...
	Goods	1,201,444	1,400,219	198,775	...
	Total ...	2,335,148	2,704,705	369,557	...

Details.		2nd of half 1873. Total.	2nd half of 1874. Total.	Increase.	Decrease.	Cost per train mile.	Cost per 1,000 Vehicle miles.
General Superintendence—		RS.	RS.	RS.	RS.	AS.	RS.
Salaries of Superintendents including allowances		750	1,407	657	...	0·138	0·520
Do. of Subordinate do., including do. ...		1,443	1,956	513	...	0·192	0·723
Office expenses		572	806	234	...	0·079	0·298
Repairs and Renewals of Vehicles and Machinery—							
Coaching Vehicles.	Wages, including overtime ...	631	1,452	821	...	0·143	1·113 (*a*)
	Materials	3,060	4,523	1,463	...	0·444	3·467 (*a*)
Goods Vehicles.	Wages, including overtime ...	3,492	4,828	1,336	...	0·474	3·448 (*b*)
	Materials	9,301	8,631	...	670	0·849	6·164 (*b*)
Cleaning and Oiling—							
Labor, including wages of Oilers, &c. ...		1,143	1,317	174	...	0·129	0·487
Stores		1,325	1,516	191	...	0·149	0·561
Unclassified Expenditure—							
	Total ...	21,717	26,436	4,719	...	2·597	9·774
	Less ...	...	31	...	31	0·003	0·011
	Net Total ...	21,717	26,405	4,688	...	2·594	9·763

(*a*) Per 1,000 coaching vehicle miles. (*b*) Per 1,000 goods vehicle miles.

TABLE G.—I.

Repairs and Working of Vehicles.

Description of Vehicles.	Average weight in tons.	Average carrying capacity	Total number constructed to end of half-year.	Repaired and Renewed. Number repaired.	Number renewed.	Total.	Average number constantly under repairs and renewals.	Proportion per cent. constantly under repairs and renewals.	Number laid by as spare, or hired out, or lent to other lines.	Average number in working order.	Total Vehicle Mileage.	Average Mileage run per Vehicle. During half-year.	Per day.
		No.					(c.)						
Coaching Stock—													
Saloon Carriages ...	...	...	...	...	...	...	...	...	...	...	844	...	...
First-class do. ...	6·70	...	3	...	...	...	...	...	...	3·000	172	57	...
Composite do. ...	7·29	30	11	17	...	17	0·807	7·326	...	10·193	122,775	12,045	65
Second-class do ...	6·56	48	8	2	...	2	0·104	1·300	...	7·896	63,315	8,019	44
Third do. do. ...	5·53	50	54	50	...	50	1·873	3·468	...	52·127	776,571	14,898	81
Horse boxes ...	7·09	3	3	4	...	4	0·082	2·733	...	2·918	22,190	7,605	41
Carriage trucks ...	5·06	1	1	...	...	...	...	...	..	1·000	4,789	4,780	26
		Tons.											
Passenger brake vans...	6·11	6	11	30	...	30	0·439	3·991	...	10·561	135,530	12,833	70
Total ...	...	...	91	103	...	103	3·305	3·632	...	87·695	1,126,186	...	...
		Tons.											
Goods Stock—													
Ballast Wagons ...	4·92	6	50	27	...	27	0·253	0·506	...	49·747	3,210	64	3
Covered Goods Wagons (a.)	6·12	6	175	136	...	136	1·548	0·884	...	173·452	823,792	4,749	26
Cattle Trucks ...	6·07	...	...	...	...	...	...	...	...	...	254	...	...
Cattle Trucks of Madras Railway (b.) ...	6·07	...	...	...	...	...	...	...	...	...	344	...	...
Coke Wagon ...	5·74	6	...	...	...	...	...	...	...	...	10,904	...	...
High sided Wagons ...	5·32	8	50	33	...	33	0·296	0·592	...	49·704	502,644	10,113	55
Open Goods do. ...	4·92	6	90	38	...	38	0·269	0·299	...	89·731	222,410	2,479	13
Timber Trucks ...	4·74	6	4	...	...	...	...	...	...	4·000	49,731	12,433	68
Travelling Crane ...	...	10	...	...	...	...	...	...	...	...	188	...	...
Goods Brake Vans ...	5·25	6	4	8	...	8	0·088	2·200	...	3·912	33,031	8,444	46
Total ...	...	...	373	242	...	242	2·454	0·658	...	370·546	1,646,508	...	...

(a.) 208,908 miles run for third-class passenger traffic, carrying capacity forty.

(b.) Used for merchandize traffic.

(c.) No record kept Arconum-Conjeveram section.

D

TABLE G.—II.

DISTRIBUTION of Vehicle Mileage according to the Traffic carried.

Description of Vehicles.	Mileage run.	Remarks.
COACHING—		
First-class	55,295	
Second do.	131,811	
Third do.	981,977	
Fourth do.	*Nil.*	
Carriage Trucks	4,789	
Horse Boxes	22,190	
Luggage Vans	108,424	
Post Office Vehicles	......	
Total paying Vehicle Mileage...	1,304,486	
Passenger Brake vans	27,106	
Total including Brakes ...	1,331,592	
GOODS—		
Goods Vehicles	1,398,410	
Cattle vans	1,809	
Mineral trucks...	...	
Total paying Vehicle Mileage ...	1,400,219	
Goods brake vans	6,348	
Total including brakes ...	1,406,567	
MISCELLANEOUS—		Ton mileage of stores and materials carried.
(For stores and materials carried free on Revenue Account.)		
For Traffic Department—Goods vehicles ...	1,528	866
For Locomotive Department—Do. do. ...	22,717	104,931
For Engineering Department—Passenger do.	2,016	16,674
Goods Vehicles...	6,044	...
Brake Vans ...	2,230	...
Total including Brakes ...	34,535	122,471
Grand Total ...	2,772,694	122,471

TABLE H.

Traffic Expenses.

—	2nd-half 1873. Total.	2nd-half of 1874. Total.	Increase.	Decrease.
	RS.	RS.	RS.	RS.
Train mileage ...	140,250	162,852	22,602	...
* Vehicle mileage. Coaching ...	1,133,704	1,304,486	170,782	...
* Vehicle mileage. Goods ...	1,201,444	1,400,219	198,775	...
Total ...	2,335,148	2,704,705	369,557	...

Details.	2nd half, 1873. Total.	2nd half of 1874. Total.	Increase.	Decrease.	Cost per Train Mile.	Cost per 1,000 Vehicle Miles.
Salaries, Wages, &c.—	RS.	RS.	RS.	RS.	AS.	RS.
General Superintendence, including travelling allowances ...	3,926	4,851	925	...	0·477	1·794
Office Establishment and Contingencies ...	970	983	13	...	0·097	0·363
Station Staff ...	15,722	16,023	301	...	1·574	5·924
Train Staff ...	3,283	3,508	225	...	0·345	1·297
Fuel, Lighting, Water, and General Stores ...	1,757	1,434	...	323	0·141	0·530
Clothing ...	816	11	...	805	0·001	0·004
Printing, Stationery, and Tickets ...	2,303	2,879	576	...	0·283	1·065
Charges for Delivery and Collection of Goods, &c. ...	...	...	...	...	...	...
Miscellaneous Expenses ...	278	246	...	32	0·024	0·091
Payments to other Lines—						
Hire of Vehicles ...	...	...	...	...	...	...
Mileage of Foreign Stock ...	5,805	8,395	2,590	...	0·824	3·104
Expenses at joint stations ...	6,924	6,763	...	161	0·664	2·500
Unclassified Expenditure ...	...	...	...	...	...	...
Total ...	41,784	45,093	3,309	...	4·430	16·672
Less ...	...	...	...	...	...	...
Net Total ...	41,784	45,093	3,309	...	4·430	16·672

TABLE J.

General Charges.

Details.	2nd-half of 1873.	2nd-half of 1874.			Cost per Train Mile.
	Total.	Total.	Increase.	Decrease.	
Train Mileage	140,250	162,852	22,602	...	
	RS.	RS.	RS.	RS.	AS.
HOME EXPENDITURE	9,275	5,118	...	4,157	0·503
INDIAN MANAGEMENT—					
Agent's Office, including travelling allowances and Contingencies	10,278	4,793	...	5,485	0·471
Auditor's Office do. ... ... } Account's Office do. ... ... } Paymaster's Office do.	11,138	9,834	...	1,304	0·966
Store Department do.	5,258	1,909	...	3,349	0·187
Medical Department do.	1,811	844	...	967	0·083
Rents	29	21	...	8	0·002
Miscellaneous expenses, including Printing and Stationery and Medicine	1,779	828	...	951	0·082
POLICE	...	187	187	...	0·018
ADVERTISING	261	...	...	261	...
ELECTRIC TELEGRAPH—					
Salaries, &c.	3,376	3,616	240	...	0·355
Maintenance—(Wages and Stores)...	281	113	...	168	0·011
GOVERNMENT TELEGRAPH DEPARTMENT FOR RENT MAINTENANCE, AND INSPECTION	...	...	...	...	...
CLEARING ACCOUNTS WITH OTHER LINES	...	...	...	...	...
UNCLASSIFIED EXPENDITURE	...	...	...	...	...
Total ...	43,486	27,263	...	16,223	2·678
Less ...	...	...	*Nil.*	...	...
Net Total ...	43,486	27,263	...	16,223	2·678

TABLE K.

Steam Boat Service.

Details.	2nd-half of 1873. Total.	2nd-half of 1874. Total.	2nd-half of 1874. Increase.	2nd-half of 1874. Decrease.
	RS.	RS.	RS.	RS.
WORKING VESSELS—				
Salaries and allowances of Officers and Crews				
Loading and unloading vessels				
Pilotage fees				
Contingencies				
REPAIRS—				
Wages				
Materials				
FUEL—	...	*Nil.*	...	...
Fuelling Establishment and Fuelling Vessels				
Coal				
Coke				
Patent Fuel				
Wood				
Miscellaneous Stores				
Steam Traffic Agencies				
Miscellaneous Expenditure				
Contribution to Flotilla Reserve Fund				
Total ...	...	...	...	...
Less ...	...	...	...	...
Net Total ...	...	...	...	...

—	Quantity consumed.	Quantity consumed.	Increase.	Decrease.
	TONS.	TONS.	TONS.	TONS.
Coal	...	...	...	...
Coke	...	*Nil.*	...	...
Patent Fuel	...	...	...	...
Wood	...	...	...	...

TABLE L.

Special and Miscellaneous Expenditure.

Details.	2nd-half of 1873.	2nd-half of 1874.		
	Total.	Total.	Increase.	Decrease.
	RS.	RS.	RS.	RS.
Law Charges	32	376	344	...
COMPENSATION—				
For goods lost or damaged	42	77	35	...
„ personal injury	...	...	...	...
„ other claims	...	...	...	...
Rates and Taxes	1,854	390	...	1,464
Interest on Revenue Balances	...	...	...	...
CONTRIBUTION TO SPECIAL FUNDS—				
Fire Insurance Fund	5,000	...	...	5,000
Permanent-way, Renewal Fund	...	...	...	...
Casualty Fund	...	...	...	...
Total ...	6,928	843	...	6,085
Less ...	...	...	...	...
Net Total ...	6,928	843	...	6,085

ANALYSIS OF CARRYING COST.

TABLE M—I.

Definitions.

The unit of Passenger Traffic is—1 passenger *plus* free luggage.
,, of Carriages is—1 carriage.
,, of Horses is—1 horse.
,, of Luggage is—1 ton.
,, of Post Office Vehicles is—1 ,,
,, of Goods is—1 ,,
,, of Cattle is—1 ,,

Approximate Weight of Units to be adopted in these calculations.

	CWT.		TONS.
COACHING—			
A 1st-class passenger with free luggage...	1·75	or	·0875
A 2nd ,, ,, ,, ,, ...	1·75	or	·0875
A 3rd ,, ,, ,, ,, ...	1·25	or	·0625
A 4th ,, ,, ,, ,, ...	1·25	or	·0625
A carriage (average for two and four-wheeled)	6·75	or	·3375
COACHING—(*Concld.*)			
A horse	8·75	or	·4375
A dog	0·20	or	·01
GOODS—			
A head of horned cattle, or a pony or horse ...	5·00	or	·25
A head of sheep, goat, &c.	0·50	or	·025

Data for calculating the incidence of carrying Cost per Unit per Mile for each Class of Passenger Traffic and for Goods, Cattle, and Minerals.

	Details.	Total Mileage of each description of Rolling Stock. (*a*)	Total Mileage of Units. (*b*)	Average Contents in Units of each Vehicle. No. (*c*)	Average Contents in Units of each Vehicle. Weight in Tons. (*d*)	Average Weight of Rolling Stock in Tons. (*e*)	Total average Weight including Contents of each Vehicle in Tons. (*f*)	Proportion per-cent. of Freight to Total Weight. (*g*)	Ton Mileage. Of Freight. (*h*)	Ton Mileage. Of Dead Weight. (*i*)	Total Ton Mileage. Excluding Engines and Tenders and Brake Vans. (*k*)	Total Ton Mileage. Including Engines and Tenders and Brake Vans. (*l*)
	COACHING—											
1	1st-Class	55,295	69,206	1·253	0·110	7·279	7·389	1·484	6,063	402,492	408,555	...
2	2nd ,, ...	131,811	302,926	2·298	0·201	6·939	7·140	2·816	26,506	914,637	941,143	...
3	3rd ,, ...	931,977	26,416,396	26·901	1·681	5·655	7·336	22·919	1,651,025	5,553,079	7,204,104	...
4	4th ,, ...	...	...	...	...	...	...	...	...	...	...	...
5	Carriage Trucks	4,789	6,599	1·373	0·465	5·060	5·525	8·417	2,227	24,233	26,460	...
6	Horse Boxes	22,190	21,374	0·963	0·421	7·090	7·511	5·610	9,351	157,327	166,678	...
7	Luggage Vans	108,424	19,868	...	0·183	6·110	6·293	2·912	19,868	662,470	682,338	...
8	Post Office Vehicles... ...	...	...	...	...	...	...	...	...	...	...	...
9	Total ...	1,304,486	...	...	...	...	...	...	1,715,040	7,714,238	9,429,278	...
10	Passenger Engines and Tenders.	79,184	...	...	...	38·923	...	...	...	3,082,109	...	...
11	Do. Brake Vans ...	27,106	...	...	...	6·110	...	...	...	165,618	...	...
12	Total Coaching Ton Mileage ...	...	...	...	...	...	...	...	1,715,040	10,961,965	...	12,677,005
	GOODS—											
13	Goods Vehicles	1,398,410	3,956,306	...	2·829	5·594	8·423	33·588	3,956,306	7,822,706	11,779,012	...
14	Cattle Vans	1,809	1,165	...	0·644	6·112	6·756	9·532	1,165	11,056	12,221	...
15	Mineral Trucks	...	...	...	...	...	...	...	...	...	...	...
16	Total ...	1,400,219	...	...	...	...	...	...	3,957,471	7,833,762	11,791,233	...
17	Goods Engines and Tenders ...	83,668	...	...	...	38·923	...	...	...	3,256,667	...	...
18	Goods Brake Vans	6,348	...	...	...	5·250	...	...	...	33,327	...	...
19	Total Goods Ton Mileage ...	...	...	...	...	...	...	...	3,957,471	11,123,756	...	15,081,227
	MISCELLANEOUS (FOR STORES CARRIED FREE ON REVENUE ACCOUNT)—											
20	For Traffic Department ...	1,528	866	...	0·567	6·097	6·664	8·505	866	9,316	10,182	...
20-A.	,, Locomotive do. ...	22,717	104,931	...	4·619	5·032	9·651	47·861	104,931	114,312	219,243	...
21	,, Maintenance do. ...	10,290	16,674	...	1·620	5·133	6·753	23·995	16,674	52,818	69,492	...
22	Total ...	34,535	...	...	...	...	...	...	122,471	176,446	298,917	...
23	Engines and Tenders ...	5,169	...	...	...	40·206	...	...	...	207,827	...	...
24	Brake Vans	...	...	...	...	...	...	...	...	...	...	...
25	For stores carried free in ordinary trains.	...	...	...	...	...	...	...	...	...	...	...
26	Total Miscellaneous Ton Mileage...	...	...	...	...	...	...	...	122,471	384,273	...	506,744
27	Total Ton Mileage ...	...	...	...	...	...	...	...	5,794,082	22,469,994	...	28,264,976

TABLE M—II.

Division between Coaching and Goods of the Expenditure of Departments.

	RS.	RS.
Maintenance expenses as per the Revenue Account		61,034
Reduced by value of stores sold	257	
Rents of dwelling-houses	1,617	
		1,874
Net amount ...		59,160
Locomotive expenses as per the Revenue Account		1,36,733
Carriage and wagon expenses as per the Revenue Account		26,405
Traffic expenses as per the Revenue Account		45,094
Reduced by stores sold	1	
Mileage of vehicles over foreign lines	6,016	
		6,017
Net amount...		39,077
General charges as per the Revenue Account		27,263
Reduced by telegraph receipts	3,155	
Fees on transfers of shares	416	
		3,571
Net amount...		23,692
Special and miscellaneous expenses as per the Revenue Account		842
Reduced by sale of unclaimed and damaged goods		41
Net amount...		801

Division of Expenses.

—	Maintenance. (a)	Locomotive. (b)	Carriage and Wagon. (c)	Traffic. (d)	General. (e)	Special and Miscellaneous. (f)	Total.
	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Expenses as reduced above.	59,160	136,733	26,405	39,077	23,692	801	285,868
Due to coaching ..	27,018	66,484	9,337	18,847	11,520	389	133,595
Due to goods	32,142	70,249	17,068	20,230	12,172	412	152,273

TABLE M—III.

Distributed Cost of carrying the Vehicles of each Class, including Freight.

Details.	Coaching.									Goods.			
	First-class.	Second-class.	Third-class.	Fourth-class.	Carriage Trucks.	Horse Boxes	Luggage Vans.	Post Office Vehicles	Total.	Goods Vehicles	Cattle Vans.	Mineral Trucks.	Total.
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Maintenance (*a*) ...	1,171	2,697	20,642	...	76	477	1,955	...	27,018	32,109	33	...	32,142
Locomotive (*b*) ...	2,881	6,636	50,795	...	186	1,175	4,811	...	66,484	70,176	73	...	70,249
Carriage and Wagon (*c*) ...	396	943	7,029	...	34	159	776	...	9,337	17,046	22	...	17,068
Traffic (*d*) ...	799	1,904	14,187	...	69	321	1,567	...	18,847	20,204	26	...	20,230
General (*e*) ...	488	1,164	8,672	...	42	196	958	...	11,520	12,156	16	...	12,172
Special and Miscellaneous (*f*) ...	17	39	293	...	1	7	32	...	389	411	1	...	412

TABLE M—IV.

Classified Cost of working over one Mile a Vehicle including its Freight; also Total Cost of carrying over one Mile a Unit of each Description of Traffic.

Details.	Coaching.								Goods.		
	First-class.	Second-class.	Third-class.	Fourth-class.	Carriage Trucks.	Horse Boxes.	Luggage Vans.	Post Office Vehicles	Goods Vehicles	Cattle Vans.	Mineral Trucks.
	PIES.	PIES.	PIES.	PIES.	PIES.	PIES.	PIES.	PIES.	PIES.	PIES.	PIES.
Maintenance	4·066	3·929	4·036	...	3·047	4·127	3·462	...	4·409	3·503	...
Locomotive	10·004	9·666	9·932	...	7·457	10·167	8·519	...	9·635	7·748	...
Carriage and Wagon ...	1·375	1·374	1·374	...	1·363	1·376	1·374	...	2·340	2·335	...
Traffic	2·774	2·773	2·774	...	2·766	2·777	2·775	...	2·774	2·759	...
General	1·695	1·695	1·696	...	1·684	1·696	1·697	...	1·669	1·698	...
Special and Miscellaneous ...	0·059	0·057	0·057	...	0·040	0·061	0·057	...	0·056	0·106	...
Total ...	19·973	19·494	19·869	...	16·357	20·204	17·884	...	20·883	18·149	...
Cost per Unit ...	15·937	8·482	0·739	...	11·871	20·975	97·595	...	7·382	28·182	...

TABLE M—V.

Statement showing in comparison the Receipts and the carrying Cost per Vehicle per Mile and per Unit per Mile of Coaching and Merchandize Traffic.

Details.	Average Receipt per Vehicle per Mile. (*a*)	Carrying Cost per Vehicle per Mile. (*b*)	Profit per Vehicle per Mile. (*c*)	Loss per Vehicle per Mile. (*d*)	Average Receipt per Unit per Mile. (*e*)	Carrying Cost per Unit per Mile. (*f*)	Profit per Unit per Mile. (*g*)	Loss per Unit per Mile. (*h*)	Proportion per-cent. of Profits to Receipts. (*i*)
Coaching—	PIES.	PIES.	PIES.	PIES.	PIES.	PIES.	PIES.	PIES.	
1st-class	14·030	19·973	...	5·943	11·195	15·937	...	4·742	...
2nd ,, ...	10·624	19·494	...	8·870	4·623	8·482	...	3·859	...
3rd ,, ...	51·012	19·869	31·143	...	1·896	0·739	1·157	...	61·025
4th ,, ...	...	...	...	...	...	...	...	...	...
Carriages	30·848	16·357	14·491	...	22·387	11·871	10·516	...	46·974
Horses	13·449	20·204	...	6·755	13·962	20·975	...	7·013	...
Luggage, including parcels and dogs ...	14·914	17·884	...	2·970	81·392	97·595	...	16·203	...
Post Office Vehicles ...	...	...	...	...	...	...	...	...	...
Goods—									
Merchandize, including Government Stores and Railway Materials ...	28·443	20·883	7·560	...	10·052	7·382	2·670	...	26·562
Cattle...	21·977	18·149	3·828	...	34·125	28·182	5·943	...	17·415
Minerals	...	...	...	...	...	...	...	...	...

Madras,
7th September 1875.

(Signed) R. G. MACDONALD,
Examiner of Railway Accounts.

Nos. 166 & 167. ORDER THEREON, 6th November 1875, No. 3,172.

RAILWAY, No. 29-A.

ORDERED that these papers be forwarded to the Government of India.

2. The Superintendent of the Government Press will attend to the request made in paragraph 4 of the Consulting Engineer's letter.

(True Extract.)
(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 168. (DOCKET No. 3,173, dated 6th November 1875.)

COPY of the above forwarded to the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 169. From C. A. LAWSON, Esq., Editor of the *Madras Mail*, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 23rd October 1875 :—

I HAVE the honor to acknowledge receipt to-day of the Proceedings, Madras Government, Department of Public Works, 13th instant, containing a letter to you from Captain Skipwith, R.E., the Assistant Secretary to the Government of India, relative to my suggestion for a revision of the existing rules for press telegrams.

2. I observe with surprise that, in the opinion of the Governor-General in Council, the "Director-General would have been fully justified if he had withdrawn the privilege" of receiving press telegrams from this journal, simply because I demurred, pending the consideration of my representation on the subject, to pay what I considered, and the Director-General has admitted, was an unjust charge. I conceive that the Government of India framed the existing rules for press telegrams not with a view to oblige Newspaper Proprietors or Editors, but *pro bono publico*. The *Madras Mail*, with a circulation of 1,694 copies, is now one of the most considerable papers in the country; and it seems to me a harsh proceeding to desire to place such a journal at a disadvantage as compared with other journals in the matter of telegraphic news for no stronger reason than that I have, on public grounds, represented some flaws, in my opinion, in the existing rules for press telegrams.

3. Moreover, the Government of India do not appear to have borne in mind the exact nature of those rules. Captain Skipwith observes that by refusing to pay the difference between the "ordinary" and "press" rates on the telegram in question (which I made no use of), I failed to fulfil my part of the contract; but it has escaped his notice that the Telegraph Department had already failed to complete its part of the contract. According to No. 1 of the Rules, it is stated that to render a message eligible for acceptance as a press message, it "must be one of manifestly public interest;" yet in the instance referred to the message contained an inquiry as to whether a statement that a certain newspaper was for sale was libellous. This message was of no public interest on the face of it, yet the signaller received it as though it were so. This, therefore, was an unintentional breach of contract on the part of the department

for which I was not responsible. Under Rule 4 the Director-General is vested with the power of "withdrawing the concession should he have reason to believe that the conditions are in any way infringed." In what way, I beg to ask, have I infringed the conditions? I have undertaken to publish messages "of manifestly public interest" transmitted to me for publication at press rates, or to pay the difference thereon between press and ordinary rates. The department forwards a message that is manifestly not of public interest as a press telegram, and this message I do not publish. Surely this is no infringement on my part of the conditions. Yet the Governor-General in Council considers that the Director-General would have been fully justified if he had punished this journal for an offence of which it is innocent.

4. The concession referred to being a valuable one, fruitful of revenue to the Government, and of news to the Government and the public, I have no wish to forfeit it; and it appears to me that the thanks rather than the implied censure of the Government are due to me for pointing out where the rules regulating that concession are susceptible of easy amendment. It is stated in Rule 5 that "these rules are experimental only, and are liable to revision or cancellation at any time after ten days' notice;" but I was evidently in error in supposing that a representation by one who has submitted them largely to the test of experience would be welcome rather than obnoxious to the Director-General and the Government of India.

5. Regarding the final paragraph of Captain Skipwith's letter, I need hardly say that the *Madras Mail* has no desire to avoid any pecuniary responsibility in connection with press telegrams. It was, of course, not the Rupees 3 that the Director-General claimed in error—a claim that he subsequently waived—which prompted the present discussion, but a feeling that it must be sometimes impossible for an Editor to act up to the engagement, "I undertake to publish in its entirety the text of every telegram received by me at the reduced rate." If, as I now underastand, the department may accept and forward at press rates messages that are *not* manifestly of public interest, and yet hold the press responsible for its own error in conceding press rates to such messages, the first of the rules under reference should I submit be modified, as it does not warrant the idea that the department is free from responsibility.

6. I beg you will do me the honor of forwarding a copy of this letter to the Government of India.

No. 170. ORDER THEREON, 6th November 1875, No. 3,174.

CIVIL WORKS, No. 11.

FORWARDED to the Secretary to Government of India with reference to letter from the Assistant Secretary to Government, Public Works Department, No. 347 T., dated 3rd September 1875.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 171. (DOCKET No. 3,175, dated 6th November 1875.)

COPY of the above forwarded to the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 172. Read the following endorsement of the Officiating Chief Secretary to Government, dated 3rd November 1875, No. 637 :—

From the Venerable C. R. DRURY, Archdeacon of Madras, to the Honorable D. F. CARMICHAEL, Officiating Chief Secretary to Government, Fort St. George, dated Madras, 2nd November 1875, No. 348 :—

I HAVE the honor to forward an application from the Revd. A. C. Taylor that the repairs and whitewashing and repainting recommended by the District Engineer for the Pursewalkum Burial-ground may be sanctioned by Government.

2. The work proposed seem to be necessary, and I hope that Government will sanction it.

TRANSFERRED to the Public Works Department for disposal.

(Signed) D. F. CARMICHAEL,
Officiating Chief Secretary.

No. 173. ORDER THEREON, 6th November 1875, No. 3,176.

CIVIL WORKS, No. 12.

COMMUNICATED to the District Engineer, Presidency, who will carry out the work from the repair grant at his disposal.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 174. Read the following letter from W. LEGGATT, Esq., A.I.C.E., Officiating District Engineer, Bellary, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Bellary, 20th October 1875, No. 1,760 :—

IN continuation of letter from this office, No. 863, dated 31st July 1875, I have the honor to forward, for the sanction of Government, and for provision of funds, two estimates accompanied by specification reports for the undermentioned works in this district :—

1 Abstract Estimate, Rupees 467.
1 List of Estimate, Rupees 429.
2 Reports.

	RS.
I.—Estimate for repairing the Taluq Cutcherry at Bellary	429
II.—Estimate for flooring with stone a portion of Taluq Cutcherry at Bellary	467
Total ...	896

2. These estimates have been prepared at the request of the Collector, who has countersigned them in token of approval. Mr. Master has requested me to issue instructions for the early execution of the work ; but from want of funds I am unable to undertake the repairs, although the estimated amount is within my competence to sanction.

No. 175. ORDER THEREON, 8th November 1875, No. 3,177.

CIVIL WORKS, No. 13.

THE estimate of Rupees 467 for new work is sanctioned. But neither it nor the repair estimate can be carried out for the present for want of funds.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 176. Read the following letter from Colonel H. DRUMMOND, R.E., Deputy Secretary to the Government of India, Public Works Department, (Railway,) to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department, (Railway,) dated Simla, 28th October 1875, No. 2,706 R. :—

I AM directed to acknowledge the receipt of your No. 2,632, dated the 13th September 1875, (received on the 8th October 1875,) from which it is seen that neither the broad nor the narrow gauge vehicles of the Railways in the Madras Presidency are suitable for Artillery requirements, and, in reply, to refer you to Public Works Department Resolution, No. 2,577—84 R., dated the 18th October 1875, and to state that information of the results of the proposed experiments at Delhi will be communicated to the Government of Madras in due course.

No. 177. ORDER THEREON, 8th November 1875, No. 3,178.

RAILWAY, No. 30.

COMMUNICATED to the Consulting Engineer for Railways in continuation of G.O., No. 3,088, dated 1st November 1875. The results of the proposed experiments at Delhi will be awaited.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 178. Read the following letter from Colonel H. DRUMMOND, R.E., Deputy Secretary to the Government of India, Public Works Department, (Railway,) to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department, (Railway,) dated Simla, 27th October 1875, No. 2,691 R. :—

I AM directed to acknowledge the receipt of your letter, No. 2,678, dated the 17th September 1875, forwarding revised estimates for protecting the Palar, Poiney, Goriattum, and Naggery bridges, Madras Railway, and stating that the Honorable the Governor in Council agrees with the Consulting Engineer that instead of strengthening the old structures it will be better to incur the expenditure required for the construction of entirely new bridges, and asking for the orders of the Government of India.

2. In reply, I am directed to say that, before passing orders, the Government of India would be glad to be furnished with a statement of the cost of the old bridges, and also with plans and estimates of the cost of the proposed new bridges, together with sections of the strata in the beds of the rivers and showing the depth at which it is proposed to seat the foundations. A note should be submitted by the Consulting Engineer, stating his reasons for differing from the opinion expressed by Sir John Hawkshaw, and giving full information regarding the tendency of the rivers to scour, liability to floods, &c.

No. 179. ORDER THEREON, 8th November 1875, No. 3,179.

RAILWAY, No. 31.

COMMUNICATED to the Consulting Engineer for Railways, for submission of the information and documents required by the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 180. Read the following docket from the Government of India, Public Works Department, (Establishment—Railway,) dated Simla, 28th October 1875, No. 595 E.—R. :—

THE following is forwarded to the Secretary to the Government of Madras, Public Works Department, in reply to his No. 2,868, dated 7th October 1875, with intimation that it must be distinctly understood by Mr. Dennison that when the Government of Madras ceases to require his services the Government of India cannot promise to provide other employment for him unless a suitable vacancy exists at the time.

(By Order,)

(Signed) J. P. THORPE,
for *Under Secy. to the Govt. of India.*

Copy of P. W. D. Notification, No. 458, *dated* 28*th October* 1875.

THE services of Mr. J. H. Dennison, Storekeeper, His Highness the Nizam's State Railway, are placed at the disposal of the Government of Madras.

No. 181. ORDER THEREON, 8th November 1875, No. 3,180.

ESTABLISHMENT, No. 15.

COMMUNICATED to the Superintendent, Madras Harbour Works.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 182. Read the following letter from E. H. PRINGLE, Esq., Acting Special Executive Engineer, Wynaad, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Luckadie, 24th October 1875, No. 778 :—

I HAVE the honor, herewith, to forward the report called for in your memorandum, No. 23, dated 26th May 1875.

2. Great delay has taken place, partly owing to absence of information on many minor points required to make the report complete, and partly by press of current work of the district and two ranges fully occupying my time.

3. There is some difficulty in accurately averaging the cost of construction and repair of roads in Wynaad on account of the varying nature of soil, climate and character of labor in the division.

4. The price of grain and food of all sorts fluctuates considerably, as the state of the weather influences their importation.

5. The labor is entirely exotic. The principal portion is drawn from Mysore; but skilled labor reaches us from Goa, South Canara, Cochin, Trichinopoly, and Coimbatore.

6. Wudders from the East Coast are employed whenever heavy earthwork has to be executed, but they will carry out only this work and that on contract alone.

7. Labor for the most part in Wynaad is of the very worst description. As a rule, the Mysore Canarese Cooly is idle and worthless to a degree, and even when closely supervised seems unable to carry out what would be deemed but an ordinary day's work elsewhere. To this and to the debilitating effects of the fever from which no class is exempt are the high rates in the district due.

8. For the sake of clearness and easy comparison with Ceylon rates, &c., I have tabulated the information required as far as possible, and have shown roads in each division of Wynaad, north, south, and south-east.

Table I. showing the Daily Hire of different Classes of Labor.

Division of Wynaad.	Class of Labor.	Usual Race.	Rates per Diem. From (RS. A. P.)	Rates per Diem. To (RS. A. P.)	Remarks.
South Wynaad.	Maistry Carpenter	Portuguese and East Indians.	1 8 0	...	Skilled labor moderately good.
	Carpenters ...		0 15 4	1 0 0	
	Maistry Bricklayer	Tamil ...	1 5 4	...	Canarese labor deficient in quantity and of a poor class.
	Bricklayers ...		0 12 4	1 0 0	
	Smiths	Tamil or Canarese ...	0 12 4	1 0 0	
	Maistries	Canarese	0 8 0	0 12 0	
	Coolies.				
	Rough-stone builders.	Canarese	0 7 0	...	Coast labor (Chermas, Nairs, and Tiers) pretty good, but not always procurable.
	Men Coolies ...	Canarese and Chermas, Nairs, Tiers.	0 5 0	0 6 0	
	Boys	Do. ...	0 3 0	0 4 0	
	Women	Do. ...	0 3 0	...	
	Cart Hire	...	1 8 0	...	Carts hardly to be procured. Government bullocks and carts in use.

Table I. showing the Daily Hire of different Classes of Labor.—(Concluded.)

Division of Wynaad.	Class of Labor.	Usual Race.	Rates per Diem. From (Rs. A. P.)	Rates per Diem. To (Rs. A. P.)	Remarks.
South-east Wynaad.	Carpenters ...	All races ...	1 0 0	1 8 0	Skilled labor of a very inferior class.
	Bricklayers ...		0 10 0	1 0 0	
	First-class Smiths		1 0 0	...	
	Men Coolies...	Canarese ...	0 5 0	...	
	Boys ...		0 3 0	0 4 0	
	Women ...		0 2 6	...	
	Cart Hire	...	1 0 0	...	
North Wynaad.	Carpenters	Portuguese and Malabar Christians.	0 15 4	1 1 4	Labor of all classes obtained with difficulty and is of the worst possible description.
	Masons	Canarese and Malabar.	0 13 4	1 0 0	
	Smiths	Canarese	0 13 4	1 0 0	
	Maistries	Do.	0 8 0	1 8 0	
	Men Coolies ..	Do.	0 5 0	..	
	Boys	Do.	0 3 0	0 4 0	
	Women	Do.	0 2 8	...	
	Cart Hire	...	1 8 0	...	Carts hired with difficulty.

Table II. showing Average Number of Months during which each Class of labor works, &c.

Race.	Number of Months during which each Race works.	Average Number of Days worked on each Month.	Average Cost of Living per Week. From (Rs. A. P.)	Average Cost of Living per Week. To (Rs. A. P.)	Division.	Remarks.
Canarese	8 to 9	20	0 8 0	0 14 0	South-east Wynaad.	Return to their country in Mysore in March, and come back about July. Live principally on raggy, only occasionally indulging in animal food, such as fowls, cats, &c. They do not grow vegetables nor rear fowls except in a very small way.
Do.	8 to 9	20	0 12 0	1 0 0	South Wynaad ...	
Do.	8 to 9	18	1 0 0	1 4 0	North ,, ...	
Tamil	6	20	2 0 0	2 8 0	South-east Wynaad.	These men are principally bricklayers.
Do.	Uncertain.	19	1 8 0	...	North Wynaad ...	Work as coolies occasionally.
Chermas	9	15	1 0 0	1 4 0	South ,, ...	Employed during three months of the year in paddy cultivation. Live principally on rice and are subject to moon blindness to a great extent.
Nairs	Uncertain.	18	1 4 0	1 8 0	,, ,, ...	Work as coolies occasionally.
Tiers	Do.	18	1 4 0	1 8 0	,, ,, ...	
Portuguese and East Indians.	Do.	23	3 0 0	4 0 0	South and North Wynaad.	Principally carpenters. Remain sometimes throughout the year.
Malabar Christians ...	9	25	Not known.		North Wynaad ...	Carpenters.

NOTE.—In feverish seasons the attendance is largely reduced especially amongst skilled laborers from the coast.

Table III. giving the Average Cost of Grain, &c.

Name of Produce, &c.	South-east Wynaad. Average Rate.	South-east Wynaad. Per	South Wynaad. Average Rate.	South Wynaad. Per	North Wynaad. Average Rate.	North Wynaad. Per	Whence brought.
	RS. A. P.		RS. A. P.		RS. A. P.		
Rice	1 0 0	10 Seers.	1 0 0	8 Seers.	1 0 0	8 Seers.	Malabar.
Raggy	1 0 0	20 ,,	1 0 0	14 ,,	1 0 0	16 ,,	Mysore.
Cholam	1 0 0	18 ,,	...	...	...	...	,,
Gram	1 0 0	20 ,,	1 0 0	12½ Seers.	1 0 0	14 Seers.	,,
Fowls	0 8 0	Each.	0 10 0	Each.	0 10 0	Each.	Wynaad.
Mutton	0 4 0	lb.	0 4 0	lb.	0 4 0	lb.	Mysore.
Green Gram	0 2 0	Seer.	0 2 0	Seer.	0 2 0	Seer.	,,
Dholl	0 2 6	,,	0 2 9	,,	...	...	,,
Potatoes	0 2 0	lb.	0 2 0	lb.	...	...	Mysore and Nilgiris.
Cocoanut Oil	...	...	0 4 6	Bottle.	0 5 0	Bottle.	Malabar.
Gingelly ,, ...	...	...	0 9 0	,,	...	...	Mysore.
Ghee	...	...	0 15 0	,,	0 14 0	Bottle.	...

Table IV. giving the Rates of Work and Materials.

Description.	Per	Division of Wynaad. South Wynaad.	Division of Wynaad. South-east Wynaad.	Division of Wynaad. North Wynaad.
Rates of Work.		RS. A. P.	RS. A. P.	RS. A. P.
Earthwork, easy soil	C. yd.	0 3 0	0 3 0	0 3 0
,, hard ,, ...	,,	0 4 0	0 4 0	0 4 0
,, gravelly	,,	0 5 0	0 6 0	0 5 0
,, embankment	,,	0 4 0	0 4 0	0 4 0
Masonry rough stone in chunam	100 C. ft.	25 0 0	25 0 0	25 0 0
,, cut ,, ,, ...	C. ft.	2 8 0	2 8 0	2 8 0
,, brick in chunam	100 ft.	36 0 0	38 0 0	40 8 0
,, ,, archwork	,,	45 0 0	48 0 0	50 0 0
,, plastering one coat	100 S. ft.	8 0 0	8 0 0	9 0 0
Woodwork, Teak, wrought and put up	C. ft.	2 8 0	2 10 0	3 0 0
,, Junglewood ,, ...	,,	1 12 0	1 14 0	2 0 0
,, sawing	Candy.	3 0 0	3 0 0	3 0 0
Painting white	Square.	1 4 0	1 4 0	1 4 0
,, red	,,	1 10 0	1 10 0	1 10 0
,, green	,,	3 8 0	3 8 0	3 8 0
,, tarring	,,	0 3 4	0 3 4	0 3 4
Quarrying	C. yd.	0 8 0	0 8 0	0 8 0
Blasting rock	,,	3 4 0	3 6 0	4 0 0
Metalling	,,	0 12 0	0 12 0	0 12 0
Turfing	100 S. ft.	0 5 0	0 5 0	0 5 0
Rates of Material.				
Bricks, table-moulded	1,000	9 0 0	9 0 0	10 0 0
,, ground	1,000	6 0 0	6 0 0	6 0 0
Lime-stone	Bushel.	1 4 0	...	1 3 0
Chunam	,,	2 0 0	2 0 0	2 0 0
Teakwood logs	C. ft.	1 12 0	1 14 0	1 12 0
,, sawn	,,	2 8 0	2 10 0	2 8 0
Junglewood logs	,,	0 12 0	0 14 0	0 14 0
,, sawn	,,	1 4 0	1 8 0	1 4 0
Iron, Europe, wrought	lb.	0 2 11	0 2 11	0 2 11
,, Native ,, ...	,,	0 4 6	0 4 6	0 4 6
,, Nails	Maund.	6 0 0	6 0 0	6 0 0
,, Cast for pile, including carriage, &c.	Ton.	250 0 0	250 0 0	250 0 0

Table V, actuals of rainfall near the Head of Tambracherry Ghaut during 1873-74.

Name of Month.	1873.				1874.			
	Rainfall during Month.	Maximum Rainfall on any one Day.	Minimum Rainfall on any one Day.	No. of Days on which it rained.	Rainfall during Month.	Maximum Rainfall on any one Day.	Minimum Rainfall on any one Day.	No. of Days on which it rained.
January ...	...	...	...	...	...	...	...	...
February ...	6·45	1·40	·01	8	·67	·45	·22	2
March	·20	·18	·02	2	·46	·45	·01	2
April	8·32	2·15	·02	16	3·66	1·15	·05	9
May	21·34	3·75	·02	20	30·55	6·25	·03	22
June	48·79	4·45	·25	30	88·81	9·35	·02	30
July	99·45	10·20	·23	31	72·47	10·30	·10	30
August... ...	32·	3·50	·05	22	28·39	3·37	·15	30
September ...	20·13	4·05	·02	23	18 79	1·75	·06	29
October ...	10·20	1·45	·03	22	17·91	4·18	·01	26
November ...	·09	·07	·02	2	4·04	1·78	·01	13
December ...	·82	·50	·05	4	·95	·55	·20	3
Total ...	247·79	...	...	180	266·70	...	...	196

NOTE.—This rainfall may be taken as a fair average for the Coffee districts along the ghauts. Inland it decreases rapidly, and at Manantoddy and the frontiers ranges from above 90 to 100 inches per annum.

Table VI. giving the Cost of Construction of Ghauts and Roads in Wynaad Coffee Districts.

Name of Road.	Cost per mile. Construction of Road.	Metalling or Gravelling.	Bridging. Masonry.	Bridging. Iron or Wooden.	Revetting.	Cost of Maintenance.	Length.	Remarks as to Soil, &c.
	RS.	RS.	RS.	RS.	RS.	RS.	MILES.	
Tambracherry Ghaut, 1st Section.	25,016	2,222	864	...	2,938	330	9	A considerable portion of this ghaut is blasted out of the face of a precipice of solid rock, and very heavy revetment 30′ and 40′ in height have been necessary. The line runs along very rocky hills for the most part. There are but few culverts in the 9 miles, but rough stone drains of $2\frac{1}{2}' \times 2\frac{1}{2}'$ section have been found necessary every 100 yards or so to carry off the terrific rainfall. Sappers and Miners were employed for some years on the work. Traffic in Coffee season about 600 to 700 carts per week; at other seasons about 150.
From head of ghaut to Vythery, 2nd Section.	4,331	491	6,556	2,213	...	330	3	Soil generally alluvial, rocky here and there; traffic as above.
From Vythery to Culputty, 3rd Section.	3,385	413	2,264	9,240	...	330	7	Soil alluvial, black earth and clays, an iron bridge on this section; traffic about half of above in Coffee season.
Karkoor Ghaut, 1st Section.	9,606	3,080	3,513	...	1,106	330	11	Rocky and stony soil for the most part. Ghaut not yet completed though passable for wheeled traffic. No returns of traffic.
From head of ghaut to Goodaloor, 2nd Section.	5,781	4,400	3,658	...	...	330	8	Deep friable loam, undulating country crossed by quartz reefs. No return of traffic.
Periah Ghaut, 1st Section.	11,437	220	2,638	...	2,234	330	8	Rock and stony soil; traffic during monsoon about 100 carts per week, during dry weather and season from 300 to 400.
From head of ghaut to Manantoddy, 2nd Section.	3,197	1,378	2,385	...	...	330	18	Varies greatly; not much rock on this section; traffic about the same as above.

NOTE.—With the exception of the three first-named roads, much of the maintenance grants is used for improving traces, heightening embankments, &c., and the actual expenditure on pure upkeep can hardly be determined.

(Signed) E. H. PRINGLE,
Acting Special Executive Engineer, Wynaad.

No. 183. ORDER THEREON, 8th November 1875, No. 3,181.

CIVIL WORKS, No. 31-A.

ORDERED that these papers be forwarded to the Governments of India and Ceylon in continuation of letters, Nos. 2,712 and 2,973, dated 20th September and 18th October 1875, respectively.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 184. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Government of India, P.W.D., dated 8th November 1875, No. 3,182.

CIVIL WORKS, No. 31-B.

SIR,— In continuation of my letter of the 20th September 1875, No. 2,712, I am directed to forward a report and statement of cost of the construction and maintenance of certain roads in the Wynaad district.

2. The officer in charge has given a considerable amount of detailed information; and, as the circumstances of that country are in many respects very similar to those of the coffee districts of Ceylon, it will probably be found a useful addition to that which has already been supplied.

No. 184. From the Secretary to the Government of Fort St. George, Public Works Department, to the Colonial Secretary to the Government of Ceylon, dated 8th November 1875, No. 3,182.

CIVIL WORKS, No. 31-B.

SIR,—In continuation of my letter of the 18th October 1875, No. 2,973, I am directed to forward a report and statement of cost of the construction and maintenance of certain roads in the Wynaad district.

2. The officer in charge has given a considerable amount of detailed information; and, as the circumstances of that country are in many respects very similar to those of the coffee districts of Ceylon, it will probably be found a useful addition to that which has already been supplied.

No. 185. Read the following letter from Lieutenant-Colonel R. F. OAKES, R.E., Superintending Engineer, Tanjore, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Tanjore, 29th October 1875, No. 2,052:—

I HAVE the honor to inform you that, on the 18th instant, I was called upon by the Superintendent of the Jail at Tanjore to provide accommodation in the cholera camp at Tanjore for the number of prisoners noted in the margin, and subsequently to provide further for a cholera hospital, a hospital for general patients, a cook-room, and for reducing the accommodation for the police from thirty to sixteen men. I informed the Superintendent of the Jail that the accommodation noted in the margin would provide sufficiently for the prisoners, &c., and suggested the order in which the buildings should be erected, requesting that he would inform me at once if there was any prospect of the cholera camp not being required, or of its dimensions being curtailed, as a considerable sum had lately been spent at Tranquebar* on a cholera

1 Abstract Estimate.

Male prisoners	150
Female do.	20
Jail officials	15
Policemen	30

3 Barracks, 100 × 18.
1 Cholera Hospital, 60 × 18.
1 General do. 48 × 18.
1 Police Shed, 48 × 18.
1 Jail Officials' Shed, 48 × 18.
1 Shed for women, 30 × 18.
1 Cook-room, 18 × 18.

* Letter, No. 1,668, dated 6th September 1875.

camp which when completed was not required, and he subsequently requested me to complete one barrack, the cholera hospital, and police shed.

2. In the absence of the Range and Sub-Divisional Officers from Tanjore, I proceeded to the camp ground and laid off the various buildings on the 19th, prepared the estimates, and put a Sub-Overseer in charge of the works; they were completed on the dates given in the margin, and the Jail Superintendent was informed that they were ready for occupation on the afternoon of the 26th. He has not moved the prisoners out to them, but has placed a cavilgar in charge of them.

One Barrack on 23rd.
Police Shed, 25th.
Cholera Hospital, 26th.

3. I enclose an abstract estimate of Rupees 195 for the buildings erected for sanction; the work has been completed for Rupees 192-7-8.

4. The sheds are covered only with keets, and if it becomes necessary to occupy them during the north-east monsoon, which has not yet set in, it is probable that a thatch of nanel or straw may be required over the keets; the more so as the keets will soon be destroyed by white-ants if the buildings are not occupied, for the red-soil in the neighbourhood of Tanjore swarms with white-ants, which have already attacked the buildings.

5. The camp is situated about three miles nearly due south of the fort at Tanjore.

No. 186. ORDER THEREON, 8th November 1875, No. 3,183.

CIVIL WORKS, No. 14.

TRANSFERRED to the Judicial Department in continuation of G.O., No. 541, dated 18th September 1875, with the view to the necessary provision of funds being assigned for the work in question from the allotment at the disposal of the Inspector-General of Jails under the head "additions and alterations."

2. His Excellency the Governor in Council considers that Colonel Oakes deserves great credit for the energy and interest shown by him personally in the erection of the cholera sheds at Tanjore.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 187. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 1st November 1875, No. 590:—

I HAVE the honor to submit the accompanying tabular form with twenty-nine registers* for the month of October 1875, showing amounts due for compensation on account of land taken up for the Madras and South Indian Railway Companies in the districts named.

* Return is requested.

2. Sanction for the disbursement of the several amounts therein entered is solicited.

Statement of compensation to be disbursed on account of Lands taken up for Railway purposes for October 1875.

Railway.	Line.	District.	Amount to be disbursed. (RS. A. P.)	Provision in Budget for 1875-76. (RS.)	When handed over to Railway Company.	Class of Land.	Remarks.
South Indian Railway.	Northern Extension.	Tanjore ...	9,926 5 0	1,70,000	June 1875 ...	A ...	
			5,081 15 0		July " ...	A ...	Includes value of trees, &c.
			6,957 7 0		June " ...	B ...	
			3,365 9 0		July " ...	B ...	
			3,274 3 0		May " ...	B ...	
			12,536 0 0		" " ...	A ...	
			7,599 11 0		April " ...	B ...	
			183 8 0		May " ...	D ...	...
			10,227 8 0		April " ...	A ...	Includes value of trees, &c.
			10,600 14 0		Aug. " ...	A ...	
			4,540 6 0		" " ...	B ...	
			180 0 0		" " ...	C ...	...
Do. ...	Do. ...	Chingleput	55 8 6	20,000	" " ...	B ...	...
			218 8 0		Nov. 1873 ...	A ...	Includes value of trees, &c.
			1,842 10 3		June 1874 ...	A and B...	
			57 8 0		Nov. 1873 ...	A and B...	Includes Rs. 50 value of well.
			19 14 1		Sept. 1874 ...	B ...	...
			29 11 8		July 1875 ...	C ...	...
Do. ...	Do. ...	Madras ...	89 2 5	42,000	Nov. 1873 ...	A and B...	...
			5,833 9 0		Sept. 1874 ...	A and B...	...
Do. ...	Do. ...	South Arcot	6 7 11	95,000	April " ...	C ...	...
			1,469 5 9		Jan. " ...	A ...	Includes value of well, &c.
			866 10 4		Jan. and June 1874 and Feb. 1875.	A ...	
			14 10 2		July 1875 ...	B ...	...
			41 12 9		Feb. and March 1874, and June and July 1875.	C ...	...
Madras Railway.	Nilgiri Branch.	Coimbatore	362 4 0	5,000	March 1872 ...	D ...	...
			810 5 0		May 1871 ...	A ...	...
			813 7 7		" " ...	B ...	Includes value of well.
South Indian Railway.	Northern Extension.	Madras ...	400 0 0	42,000	Loss of rent sustained by Civil Asylum authorities, payment of which was sanctioned in G. O., No. 25, dated 3rd September 1875.		
			204 0 0				
Madras Railway.	North-west Line.	Cuddapah ...	73 13 5	1,000	August 1875 ...	C ...	...
		Total ...	87,673 10 10				

MADRAS,
1st *November* 1875.

(Signed) W. H. COAKER, Captain, R.E.,
for *Consulting Engineer for Railways.*

No. 188. ORDER THEREON, 8th November 1875, No. 3,184.

RAILWAY, No. 32.

SANCTION is accorded to the disbursement of the sums shown in the abstract prepared by the Consulting Engineer for Railways amounting in the aggregate to Rupees 87,673-10-10. Of this amount, Rupees 400 and Rupees 204 respectively on account of compensation for loss of rent by the

Civil Asylum authorities at Madras were sanctioned in G.O., No. 25, dated 3rd September 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 189. Read the following letter from J. D. GRANT, Esq., Officiating District Engineer, Tinnevelly, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Puthugudy, 22nd October 1875, No. 89 :—

I HAVE the honor to report that the temporary lighthouse at Muttum with its out-buildings was handed over to the Marine Department on the 23rd ultimo.

2. I have made many deviations from the original plan to meet the wishes of the Master Attendant, Tuticorin, but no additional cost has been incurred.

3. The most important deviation is in the size of the platform for the lantern, which was originally allowed 11 feet by 6 feet, in area ; this, as Captain Phipps pointed out, was too small, and I have increased it to 11 feet by 8 feet, which allows sufficient space for a man to pass round, the lantern being 7 feet by 3 feet 6 inches ; an iron hand-rail has also been erected. In order to reduce the cost so as to admit of this increase in size, the bricks burnt last year for the permanent lighthouse were used ; had they not been so used I believe they would soon have disappeared, as it was impossible to watch them constantly.

4. The doors and windows prepared for the permanent bungalow have been fixed in the temporary building, where they will be safer than in the store-shed, and if the cost of these and the bricks is not required to be recovered and credited to the original estimate, the cost of the present work will be Rupees 907-7-10, leaving a saving of Rupees 92-8-2, from which sum I would beg permission to repair the store-sheds at Comorin and to pay the watchman there, for which purpose no money has been this year allotted.

No. 190. ORDER THEREON, 8th November 1875, No. 3,185.

CIVIL WORKS, No. 15.

THE course proposed by the Officiating District Engineer in paragraphs 3 and 4 of his letter is irregular and cannot be sanctioned. The bricks as well as doors and windows prepared for the permanent, but now used for the temporary lighthouse and bungalow, must be credited at their full value to the former and debited against the latter work, it being assumed that the articles in question have already been charged against the estimate for the permanent buildings.

2. The actual expenditure incurred by the District Engineer, whether in cash or stock materials or materials transferred, should be separately reported.

3. There has apparently been no saving on the estimate, but in any case the repairs proposed to the store-sheds must be met by a separate allotment, and one work must not be confounded with another in the matter of expenditure.

4. A separate estimate must be furnished for the pay of the watchman.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following :—

No. 191. MEMORANDUM.

No. 1,216.

In Proceedings, Madras Government, No. 2,757, of the 23rd September 1875, were given the sanctions for Survey Establishments, and the amount then known to be required for the investigations on which the establishments are employed during the current year, the total being Rupees 23,749 against a grant of Rupees 25,000. Since then the following sanctions have been given or recommended to be given, and the necessity for supplementing the grant has become evident. Probably an additional grant of Rupees 5,000 will suffice, and as a large part of the work to be done is in connection with the repair and maintenance of irrigation works, on which account the sanctions shown in the Proceedings quoted amount to Rupees 9,647, it is suggested that Rupees 5,000 be made available by transfer from the Agricultural Repair Grant, it being essential that in numerous cases surveys and levels should precede the preparation of estimates for the repair of existing irrigation works.

Chingleput.—Rupees 90 for surveys in connection with the Madras Water Works Project.

Do.	,,	600	do.	do.	do.	Kambakal and Govindavady channels.
Godavery	,,	400	do.	do.	do.	Village Drainage.
Salem	,,	225	do.	do.	do.	Tanks commanding the Railway line.

Kistna ,, 1,700 for preparing completion estimates of the Eastern and Western Deltas.

Camp Palar Anicut,
16*th October* 1875.

(Signed) JOHN MULLINS, Lieut.-Colonel, R.E.,
Chief Engineer for Irrigation.

No. 192. Order thereon, 8th November 1875, No. 3,186.

IRRIGATION, No. 11.
Establishment.

Under the circumstances reported in the foregoing Memorandum, and subject to the confirmation of the Government of India, the Honorable the Governor in

Council approves of the transfer of Rupees 5,000 from the Agricultural Repair Grant, at the disposal of the Chief Engineer for Irrigation, to that for Survey Establishments, to meet the cost of investigations during the current year.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following papers :—

No. 193. Proceedings of the Madras Government in the Revenue Department, dated 9th August 1875, No. 1,192.

ABSTRACT.—*Money compensation for lands taken up for Public Works.*—Referring to the Department of Public Works for remarks Board's Proceedings requesting information as to whether the instructions given in G.O., 17th April 1875, No. 778, relative to the payment of — are intended to supersede necessity for the previous sanction of the Board and Government, &c.

No. 446.

REFERRED to the Controller of Public Works Accounts for report.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government, P.W.D.

OOTACAMUND,
27*th August* 1875.

No. 193-A. From Captain L. CONWAY-GORDON, R.E., Controller of Public Works Accounts, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 20th October 1875, No. 110 W.

WITH reference to your letter, No. 446, dated 27th August 1875, forwarding to me for report a copy of the Proceedings of the Board of Revenue, under date 17th June 1875, with regard to the payment of compensation for land taken up for public works, I have the honor to submit, for the consideration of Government, the following remarks.

2. The observations of the Board have reference to the payment of compensation of land

1*st.*—In cases where the land has been already taken up, and

2*nd.*—In all future cases where land may be required.

3. Taking the second of these first in order, the rules at present in force for taking up land for public works are as follow :—

The estimate for a work drawn up by a Public Works Officer invariably includes the value of the site, the price per acre for the land entered in the estimate being as advised by the Civil authorities, to whom the Public Works Officer applies to learn the probable cost of this item in the estimate.

On the estimate being sanctioned, and the land required for the commencement of the work, the Public Works Officer submits the case to the Civil authorities, who, if they find either by voluntary agreement or under Act X. of 1870 they can secure the land for about the amount entered in the estimate, then and there acquire it and hand it over to the Public Works Department. If, on the contrary, the Civil authorities find there is likely to be any considerable excess over the sanctioned amount, they apply again to the Public Works Officer either to submit to Government a revised estimate for the increased sum required, or to arrange for some cheaper ground by changing, if possible, the site of the building.

4. These instructions appear clear, and if carried out it is evident that for the price that may eventually be paid for the land there is in every case a pre-existing sanction of Government. In their opening paragraph, where the Board speak of payments for compensation being made on passed bills from the Controller without the previous sanction of Government, there is evidently some misconception on the part of the Board as to the duties of an Auditor. The Controller of Public Works Accounts not being a sanctioning authority, the mere fact of his passing a bill implies of necessity a sanction of Government against which the charge has been audited.

5. As regards actual payments for compensation, the ordinary course is for the Civil authority to submit a bill to the District Engineer, who, after countersigning the bill, forwards it to the Controller. On return of the audited bill, the Collector makes the payment, which eventually appears in our Exchange Accounts with the Civil Department as a debit to the Public Works Department. The Controller advises the Range Officer concerned of the debit thus raised, and in this way the item finally appears in the Range Accounts against the provision made for land in the estimate for the work.

6. The Board in their paragraph 3 suggest that there is no necessity for this pre-audit on the part of the Controller. I think the necessity exists simply on the ground that payments for land are not made by the Public Works Officer who keeps the accounts of the work in which these payments are eventually to appear, and who is primarily responsible to Government for the estimate not being exceeded. It is, I think, important for the Public Works Accounts Department to have early information as to these payments, which otherwise would only be known on receipt of the Exchange Accounts from the Accountant-General, Madras. The system works well elsewhere, and should not, I think, be departed from without some strong reason being advanced for so doing.

7. With regard to the Board's proposal to limit the power of the Collector in settling the price of land, I cannot see that any advantage would be derived from taking this course. The price of the land is fixed either under the Land Acquisition Act or by voluntary agreement. In the former case no action on the part of the Board of Revenue could affect the amount awarded under the Act. In the latter case, I cannot believe that the solicitations of the Board of Revenue would induce an obdurate landholder to abate his terms to any appreciable extent. I anticipate that the only effect of referring claims for compensation to the Board would be delay in placing the Public Works Department in possession of the land; the eventual saving in the price of the land being little or nothing. The balance of advantage appears to me to rest with the Collector having full power, without reference to the Board, to settle the price of all land taken up for public works under the present rules.

8. The foregoing remarks apply to all future cases, in which land may be required for public works, whether Imperial, Provincial, or Local. With regard to past acquisitions of land, if any case has occurred of land having been occupied without compensation having been paid, and from the terms of the Board's letter I am reluctantly forced to the conclusion not only that such cases have occurred, but also that cases of the sort are more frequent than I could otherwise have thought possible, it seems to me almost a misuse of the word '*sanction*' to apply it in respect to a liability which Government has already incurred, and which could be legally enforced against Government in any Court of Law.

9. At this period, discussions regarding the formal allotment of funds appear altogether out of place. Whether funds are or are not formally available, common honesty requires that debts should be settled before further expenditure is incurred. The discussion should, in my opinion, be limited to the single issue of how most speedily can be settled claims in the adjustment of which I feel keenly that the honor and credit of this Government are alike involved.

10. So far from limiting the powers of the Collectors in settling past claims for compensation, I am of opinion that the action hitherto taken has been inadequate to meet the necessities of the case. I am of opinion that a definite date should be fixed, and that all Civil Officers should be held responsible for settling, within that date, all the present outstanding claims.

11. In the settlement of such claims I agree with the Board of Revenue that the countersignature of the District Engineer, as a guarantee that the land has been taken for public works, will be sufficient without reference to this office. Besides, the Government of India have already laid down that the award of the Court or a certified copy of it is a sufficient authority to the Controller to pass charges for compensation when the land has already been taken up.

12. The claims themselves must be met from the Public Works Budget, but it is an open question whether the interest at 6 per cent. per annum, which under the Act such claims carry from the date of occupation, should not be more fairly a charge on the Civil Budget in all cases when the delay in payment has not been directly caused by the officers of the Public Works Department.

13. In paragraph 5 of their Proceedings, the Board of Revenue point out that Collectors should satisfy themselves before making payments that there is provision in the estimate of the work and the Budget.

The rules more properly point out the advisability of taking all these precautions before the land is occupied and Government committed to the expenditure. After any of Her Majesty's subjects have for purposes of State been ousted from their property, it is to me perfectly inconceivable that any doubt should exist as to their right to the immediate payment of the money compensation awarded them. The orders of the Government of India are explicit on the point, and are at variance with the suggestions of the Board.

> "On all occasions, however, the first duty of the Local Departmental Authorities is to pay up in full from the General Funds at their command the whole amount of the judicial award under the provisions of the Act."

14. The proposals of the Board of Revenue in paragraph 4 to make an annual provision in the Public Works Imperial Budget for past claims on account of land might, if accepted, be almost held to imply a recognition on the part of the Public Works Department that the present irregular system of taking up land without paying down compensation is to continue. The Board of Revenue doubtless do not contemplate the continuance of such a system to the extent of its requiring a regular annual Budget provision, but as the proposal of the Board might undoubtedly be held to have this meaning, I do not think in its present shape it should be entertained. If the remaining months of the current official year are not sufficient for the adjustment of the outstanding claims for land, an exceptional provision might be made in the next year's Budget at the special request of the Board of Revenue. For the future the estimates for works included in the Public Works Budgets should include the value of the land required, and this can be made available to the Civil Department for disbursement as soon as the land is occupied.

15. From the above remarks Government will understand that I do not recommend any change in the present system. All that is required is for some one to see. that the rules at present in force are properly attended to. Should Government be of opinion that good will result therefrom, I will compile in a neat pamphlet all the orders regarding the acquisition of land for public works, and forward it for the approval of Government.

No. 194. ORDER THEREON, 8th November 1875, No. 3,187.

ACCOUNT, No. 4-A A.

HIS Excellency the Governor in Council approves entirely of the Controller's arguments and conclusions, and requests that he will, in communication with the Under Secretary in the Public Works Department, prepare a Chapter of the Public Works Code, dealing exclusively and completely with the subject of compensation for lands taken up for State purposes, for the information and guidance of officers and subordinates of the Revenue and Public Works Departments.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 195. Read the following endorsement of the Chief Engineer for Irrigation, dated 22nd October 1875, No. 42 :—

From A. J. DODSON, Esq., Manager and Acting Chief Engineer of the Madras Irrigation and Canal Company, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, dated Kurnool, 19th October 1875, No. 116.

September Reports.

I HAVE the honor to forward per book post copies of the Upper and Lower Divisions reports together with my own for the month of September 1875.

MADRAS IRRIGATION AND CANAL COMPANY.

UPPER DIVISION.

Monthly Report for September 1875.

(1.) Nothing of importance has occurred during the month. The rainfall has been comparatively slight, but enough has fallen to secure the dry crops already sown. They are in a good condition. Should no more rain fall, the demand for water will probably be greater than usual later on.

(2.) The state of the crops now under irrigation is excellent. Only one failure has been reported as yet, and that is due to bad soil.

(3.) Up to the 4th October tickets had been issued for 3,289·20 Acres, but more application are daily coming in; it is certain that the first crops will reach my estimate, *viz.*, 4,769·66 Acres.*

* This includes 396·59 Acres of the Lower Division.

(4.) The cholera in Nundial Taluq may have occasioned a little falling off; as for some days the making of channels was prevented in one are two villages, and the Company's officers were not allowed to enter the villages. It is now checked considerably.

(5.) Upon careful inquiry it appears that the decrease of irrigation in Culloor (or Kurnool village) is principally due to the following causes :—

(I.) The landlords who as a rule do not cultivate their fields lease them for a few years, often three or four years only. As these leases run out, they endeavor to raise their rents, especially on irrigated fields; this year for upwards of 40 Acres, 1 Rupee extra per acre was demanded; therefore the ryots refused to irrigate, and dry crops have been sown.

(II.) The owner of the tannery near Kurnool has given up 33 Acres; it is said that through severe losses in business he was unable to sow rice and other crops requiring a certain outlay of ready money.

(III.) Other ryots have given up through failure of crops last year from rain, and some through mismanagement.

Altogether 100 Acres have been given up and 25 Acres newly irrigated. Probably next year the whole will be again under irrigation.

(6.) The result of investigation shows that, although the area irrigated in individual villages may fluctuate, there is a continual increase going on in the total irrigation, even in the worst seasons.

(7.) The bridge at Ulloor is now entirely completed for traffic.

(8.) It may be interesting to know that, although a few extra works are necessary at certain points to render navigation easy, I have been able to reach Puggadial from Kurnool with occasional stoppages in twelve hours in a small boat tugged by coolies unaccustomed to the work. The distance is thirty-six miles. There is no doubt that the rate of four miles an hour could be maintained when the tow-path is in proper condition and coolies have been trained.

Other trips have been made up the canal, and the rate of three miles an hour could be easily maintained.

(9.) The health of the staff has been good.

(10.) The usual forms accompany this report.

(Signed) C. H. WILKS,
Conservancy Engineer.

MADRAS IRRIGATION AND CANAL COMPANY.

Register of Rainfall in Inches and Decimals of the following Stations during the Month of September 1875, *at* 6 A. M. *daily* :—

Month and Date.	Soonkesala.	Kurnool.	Jupand.	Valapanoor.	Jutoor.	Ayaloor.
1st September 1875...	...	...	...	0·10	0·30	...
2nd „ „ ...	0·60	0·72	0·70	1·60	1·20	0·29
3rd „ „ ...	...	0·10	2·00	0·45	1·70	0·66
4th „ „ ...	0·90	0·54	0·40	0·60	0 65	...
5th „ „ ...	0·50	0·04	0·80	...	0·30	...
6th „ „ ...	...	...	...	...	0·25	...
7th „ „ ...	...	...	...	...	...	...
8th „ „ ...	...	...	...	...	...	...
9th „ „ ...	...	0 08	...	...	...	...
10th „ „ ...	...	...	...	...	...	0·19
11th „ „ ...	...	0·13	...	...	0·30	...
12th „ „ ...	...	...	...	0·50	...	0·98
13th „ „ ...	0·20	1·73	0·90	...	0·75	0·12
14th „ „ ...	...	...	...	...	...	...
15th „ „ ...	...	...	...	...	...	...
16th „ „ ...	...	...	...	...	...	0·19
17th „ „ ...	0·15	0·38	0·40	0·30	0·60	...
18th „ „ ...	...	...	...	...	0·80	0·38
19th „ „ ...	...	...	...	...	...	0·06
20th „ „ ...	...	0·22	0·50	0·20	0·15	...
21st „ „ ...	...	...	...	0·30	...	...
22nd „ „ ...	...	...	...	0·30	...	0·56
23rd „ „ ...	...	...	0·20	0·30	1·60	1·64
24th „ „ ...	0·40	1·27	1·00	0·30	2·00	0·16
25th „ „ ...	...	0 07	0·60	1·10	...	...
26th „ „ ...	...	...	...	...	...	...
27th „ „ ...	...	...	...	...	...	...
28th „ „ ...	2·40	0·75	...	0·10	1·50	0·53
29th „ „ ...	...	...	0·10	0·20	...	0·04
30th „ „ ...	...	...	...	...	...	...
Total...	4·85	6·03	7·60	5·35	12·10	5·80

KURNOOL,
8th October 1875.

(Signed) C. H. WILKS,
Conservancy Engineer.

MADRAS IRRIGATION AND CANAL COMPANY.

LOWER DIVISION.

Report for the Month of September 1875.

THE amount of rain which fell at Dhoor during the month was only 7·32 inches against a fall of 28·14 inches during September 1874 ; but in spite of the small amount of rain this year the dry crops are all very good, and the works of the canal have received no injuries of any kind. Some irrigation channels have been breached by heavy local storms, but the supply of water to the fields has never been interfered with for more than a few hours at a time.

IRRIGATION.

2. In the Nundial Taluq the increase of area under wet cultivation first crop is very satisfactory, being 1,021 Acres against 512 Acres during last season ; the crops look well, and the yield of grain promises to be full. The large tanks in this taluq are at present full of water, and I therefore do not expect any demand for canal water to supplement their supply.

3. Sirwell Taluq shows an increase equally good with that in Nundial; the ryots there are later in sowing their paddy, and in consequence few tickets have as yet been applied for; but 1,029 Acres have been sent in, and I fully expect a final return of 120 per cent. in this taluq over the returns of last season.

4. In Koilkuntla Taluq the ryots are also very late in sowing paddy, and tickets for only 140 Acres have as yet been given out; but from the reports of the Overseers and Amins there is no doubt that ultimately we shall secure an addition of 50 per cent. on last season's returns in this taluq.

5. In Jummulmadagoo Taluq we had no first crop paddy last year, but from the preparations making by the ryots, I anticipate a fair return from many villages.

6. The taluq of Proddatoor in the Cuddapah District, which during the last two seasons made so marked an increase in its amount of irrigation, will, I fear, judging from the returns hitherto sent in, make very little progress this season; but if the rains of the north-east monsoon are not heavy, we may expect a great improvement in the second crops. Throughout the Cuddapah Taluq irrigation has commenced extensively, but the ryots have as yet made no applications. I, therefore, am unable to give any certain statement of the amount likely to be irrigated, but hope it will eventually show an increase over that of last year, as the completion of the Goorumpaud channel will open up a new district.

GENERAL.

7. Not being myself able to visit Dhoor in order to conduct the Irrigation Settlement for the season of 1874-75, I appointed Mr. Crawford as my representative, who on the 12th instant met Kistna Row, the Deputy Collector of Cuddapah, and they, assisted by Mr. Dunphy, completed all the villages in the district except Chennur; for in that important village no tickets were sent in by the Curnams until after the crops had been cut, and at the Settlement the Tahsildar of Cuddapah was obliged to acknowledge that he was unable to obtain any reliable information from the Curnams of the village as to the amount of acres irrigated; but I now propose to visit Dhoor myself, and hope soon to be able to come to a final arrangement as to this long delayed Settlement.

8. Cholera has visited most of the villages along the canal between Cuddapah and Nundial, but it has not been severe except in the town of Cuddapah, and I am happy to say that only two of the Company's servants, a lascar and a banker, have died from this desease, and it is now rapidly decreasing.

KURNOOL,
12*th October* 1875.

(Signed) A. J. DODSON,
Conservancy Engineer.

MADRAS IRRIGATION AND CANAL COMPANY.

Acting Chief Engineer's Report to accompany the Divisional Reports for September 1875.

THE dryness of this season has apparently extended to the Western Ghauts, for the river Toombuddra has not kept up to the height it generally maintains during September; but as yet the supply of water has never sunk below 6 inches over the anicut crest, and I hope we shall have sufficient water to enable our continuing the supply until the end of April.

2. All the masonry works chargeable to Capital which were to be done this season are now nearly completed, including two 2nd-class bridges, and I am negociating for the supply of teak timber to enable our making the proposed alterations to the four 3rd-class bridges which the Madras Government have so frequently requested the Company to construct.

3. From the details given in the reports sent in by the Conservancy Engineers, I think the prospects of a large and continuous increase of irrigation are very good, and as soon as the reductions of rates allowed by the new rules have by the lapse of time again reached the maximum of Rupees 6, the extension of area sown will commence to tell upon the income largely, but this desirable result is delayed by the ryots so frequently changing the sites of their fields in order

to retain the low rate of Rupees 3, ignorantly thinking, also, that they will on returning next year to their old fields be again allowed the low rate, a mistake which only experience of its falsity will induce them to forego; but in spite of this and many other difficulties thrown in the way of those who are so anxiously endeavoring to promote the prosperity of the canal as an irrigating power, I am sure that the fact of this season's irrigation not having been in any way interfered with by any fault in the construction or working of the canal, must have a very good effect in increasing the confidence of the villagers in the permanency of our works, so that they will not be afraid to invest their labor in wet crops, which, if the supply of water is sure, without doubt is far more profitable than any dry crop grown in this part of the country.

4. Some freshes in the Caulee and Koond river gave an ample supply of water throughout the month to the 7th, 8th, and 9th Sections, and the Pennair has been in flood most of the month.

(Signed) A. J. DODSON,
Manager and Acting Chief Engineer.

12*th October* 1875.

MADRAS IRRIGATION AND CANAL COMPANY.

Register of Rainfall in Inches and Decimals of the following Stations during the Month of September 1875, *at* 6 A.M. *daily* :—

Month and Date.	Soonkesula.	Kurnool.	Japaud.	Velapanoor.	Jutoor.	Ayaloor.	Chintakunta.	Rajoly.	Dhoor.	Adimapally.
1st September 1875.	...	...	...	0·10	0·30	...	...	...	...	...
2nd „ „	0·60	0·72	0·70	0·60	1·20	0·29	...	0·20	0·09	...
3rd „ „	...	0·10	2·00	0·45	1·70	0·66	0·05	0·85	0·20	...
4th „ „	0·90	0·54	0·40	0·60	0·65	...	...	...	1·45	0·82
5th „ „	0·50	0·04	0·80	...	0·30	...	...	...	...	...
6th „ „	...	...	...	...	0·25	...	...	...	...	...
7th „ „	...	...	...	...	...	...	...	...	...	...
8th „ „	...	...	...	...	...	...	...	...	...	...
9th „ „	...	0·08	...	...	...	...	...	...	...	...
10th „ „	...	...	...	..	...	...	...	...	...	...
11th „ „	...	0·13	...	...	0·30	...	...	...	...	...
12th „ „	...	...	...	0·50	...	0·98	...	...	1·03	...
13th „ „	0·20	1·73	0·90	...	0·75	0·12	0·09	...	0·83	0·96
14th „ „	...	...	...	...	...	...	...	...	...	0·18
15th „ „	...	...	...	...	...	...	...	...	...	...
16th „ „	...	...	...	...	...	0·19	...	...	...	...
17th „ „	0·15	0·38	0·40	0·30	0·60	...	...	...	...	...
18th „ „	...	...	...	...	0·80	0·38	...	...	...	...
19th „ „	...	...	...	...	...	0·06	...	...	...	...
20th „ „	...	1·22	0·50	0·20	0·15	...	...	...	0·45	0·28
21st „ „	...	...	...	0·30	...	...	...	...	...	...
22nd „ „	...	...	...	0·30	...	0·56	0·06	0·20	0·05	...
23rd „ „	...	...	0·20	0·30	1·60	1·64	...	...	...	0·11
24th „ „	0·10	1·27	1·00	0·30	2·00	0·16	0·58	0·16	...	0·69
25th „ „	...	0·07	0·60	1·11	...	...	..	...	...	...
26th „ „	...	...	...	...	...	...	...	...	...	...
27th „ „	...	...	...	...	...	...	1·69	0·45	2·34	...
28th „ „	2·40	0·75	...	0·10	1·50	0·53	1·41	0·25	0·64	...
29th „ „	...	...	0·10	0·20	...	0·04	0·43	...	0·24	...
30th „ „	...	...	...	...	...	...	...	...	...	...
Total ...	4·85	6·03	7·60	5·35	12·10	5·80	4·31	2·11	7·32	3·04

KURNOOL,
12*th October* 1875.

(Signed) A. J. DODSON,
Manager and Acting Chief Engineer.

SUBMITTED for the information of Government.

(Signed) JOHN MULLINS, Lieut.-Colonel, R.E.,
Chief Engineer for Irrigation.

No. 196. ORDER THEREON, 8th November 1875, No. 3,188.

IRRIGATION, No. 11.

ORDERED to be recorded.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 197. Read the following letter from Captain J. PENNYCUICK, R.E., District Engineer, North Arcot, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Vellore, 13th October 1875, No. 2,644 :—

1 Detailed Estimate.
1 Abstract do.
2 Plans.
1 Sketch.

WITH reference to G.O., No. 247, dated 26th May 1875, I have the honor to forward herewith, for the sanction of Government, a detailed estimate, accompanied by plans and duplicate abstract, amounting to Rupees 1,800, for constructing a new Rifle Range, as per standard plan, for the use of the 14th Regiment Native Infantry, at Vellore.

2. The plan has been approved by His Excellency the Commander-in-Chief.

3. I request that the enclosures may be returned when no longer required.

No. 198. ORDER THEREON, 8th November 1875, No. 3,189.

MILITARY WORKS, No. 3.

THE plan and estimate are sanctioned; but it is not probable that funds will be available for the work during the current year, and no allotment can be made at present.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Nos. 199 & 200. *Under date the 8th November* 1875, No. 3,190.

ESTABLISHMENT, No. 16.

ADVERTING to copy of Public Works Department Notification of the Government of India printed with G.O., No. 1,284, dated 5th May 1875, Mr. T. Vanstavern is brought on the list of Executive Engineers, 2nd Grade, from the 21st April 1875, next below Captain Pennycuick, R.E., his first permanent appointment in the department dating next after that of Captain Pennycuick. By his accession to the department the strength of the grade to which he belongs is augmented proportionally.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 201. Read the following letter from Captain G. T. SKIPWITH, R.E., Assistant Secretary to the Government of India, Public Works Department, (Civil Works—Irrigation), to Lieutenant-Colonel J. MULLINS, R.E., Joint Secretary to the Government of Madras, Public Works Department (Irrigation Branch), dated Simla, 7th October 1875, No. 369 I. :—

WITH reference to your No. 2,391, of the 19th August last, forwarding the statements of traffic, &c., on canals in the Madras Presidency for the months of September 1874 to January 1875, I am directed to remark on the large falling of in the traffic as compared with the corresponding period of the previous year; and to inquire whether any reason can be assigned for the decrease.

2. I am also to invite attention to this office No. 672 I., of the 11th November 1874, requesting that in all future returns the sums realized on account of tollage should be shown, and to state that the information asked for has not been supplied. Unless the tollage is exhibited in some form, it is impossible to ascertain what the direct navigation returns are. It is left to the Madras Government to arrange how this can be most conveniently shown, but I am to suggest that perhaps the best way will be to show the realizations to the end of the month concerned.

No. 202. ORDER THEREON, 8th November 1875, No. 3,191.

IRRIGATION, No. 12.

THE HONORABLE the Governor in Council observes that the statements of traffic of the Godavery Canals do not exhibit a falling off in traffic, but an increased number of boats, tonnage, and ton mileage in every month included in the statements referred to as follows :—

—		1873.				1874.
		September.	October.	November.	December.	January.
Boats	No.	7,794	7,298	9,504	9,996	5,758
Tonnage	...	114,021	102,221	154,350	154,090	91,657
Ton Mileage	...	2,931,853	2,756,358	4,264,286	4,012,364	2,664,902

—		1874.				1875.
		September.	October.	November.	December.	January.
Boats	No.	10,989	11,007	13,630	14,063	7,817
Tonnage	...	158,102	163,134	223,512	231,166	142,316
Ton Mileage	...	3,596,003	3,838,211	5,287,303	5,536,734	3,796,335

The license fees collected in this delta are also given.

2. In the Kistna Delta, the traffic shows a considerable falling off, and the officer in charge of the district will explain the causes, and take care that explanations of all

considerable variations are for the future always furnished. It may be noticed that the navigation in this delta not possessing the same facilities as in the Godavery the traffic is comparatively inconsiderable, nevertheless the difference is sufficiently marked to require that the cause of the canals not being used to a much larger extent should be inquired into.

3. The statements for each month should show the license fees collected from January up to date for each delta as directed in G. O., 14th January 1875, No. 109.

4. In G. O., No. 998, dated 14th April 1875, orders were issued for the grant of separate licenses for the Kistna Delta, and it is hoped that under this arrangement material addition will be made to the receipts. Attention has also been called to the cost of maintaining navigation in this delta as compared with the revenue derived therefrom, and measures will be taken to reduce the cost of navigation establishments if the receipts do not appear likely to increase.

5. Ordered that a copy of these Proceedings be forwarded to the Government of India.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 203. (DOCKET No. 3,192, dated 8th November 1875.)

COPY of the above forwarded to the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 204. Read the following letter from Colonel C. H. DICKENS, R.A., Secretary to the Government of India, Public Works Department, (Account—General,) to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department, dated Simla, 13th October 1875, No. 643 A.—G. :—

I AM directed to acknowledge receipt of your letter, No. 2,265, of the 5th ultimo, regarding the provision of funds for the Lock Hospital proposed to be built at Wellington.

2. In reply I am to state that in the absence of a plan and estimate for the work, and of information as to the number of patients it is intended to provide for, the Government of India is unable to form an opinion as to the reasonableness of the cost of the work. I am therefore to request that the necessary plan and estimate, together with such further information as may tend to explain the necessity for what is apparently or needlessly substantial building, may be furnished to the Government of India.

No. 205. ORDER THEREON, 8th November 1875, No. 3,193.

MILITARY WORKS, No. 3-A.

ORDERED that the following letter be despatched to the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 206. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Government of India, P.W.D., dated 8th November 1875, No. 3,194.

MILITARY WORKS, No. 3-B.

SIR,—In reply to your letter, No. 643 A.—G., dated 13th October 1875, I am directed to forward, enclosed, the plans and estimate for the Lock Hospital proposed to be built at Wellington.

2. The building is intended to accommodate a matron and sixteen patients, and will be provided with a dispensary and store-room, as well as with an inspecting-room and the necessary adjuncts of out-houses and latrine, the whole being surrounded with a wall.

3. I am to mention that the plans and site of the proposed hospital were examined by the Sanitary Commissioner, and approved of by him, and he has reported to Government his desire that the construction of the buildings should be commenced in this year, as the present Lock Hospital is quite inadequate to its purpose, and is required to be converted into a residence for the Depôt Hospital Assistant.

4. The Honorable the Governor in Council desires me to mention that the estimate is not capable of any appreciable reduction, except perhaps in the size of the quarters to be provided for the peons; and I am to observe that the cost of labor and building materials on the hills is considerably greater than in the plains.

No. 207. Read the following Circular of the Government of India, Public Works Department, (Account—General,) dated Simla, 14th October 1875, No. 57 :—

Charge for exchange on materials purchased in England or payments made in England for works for which Capital and Revenue Accounts are kept.

Read the following :—

RESOLUTION by the Government of India, Financial Department, dated 14th July 1873, No. 1,666.

THE Governor-General in Council has considered whether the cost of remitting funds to buy in England materials for Extraordinary works should be included in the "Extraordinary" account.

2. The Secretary of State for India recently objected to the distribution of the item "Loss by Exchange" among the several services to which it properly belongs.

3. The charge cannot therefore be debited as Extraordinary in the Finance and Revenue Accounts.

4. But in any statement prepared, apart from the Finance and Revenue Accounts, to show the true cost of these works, count should always be taken of the charge for remitting funds expended in England.

ORDER.—Ordered that a copy of the above be forwarded to the Public Works Department, and the Comptroller General.

RESOLUTION.—In order to give effect to the decision recorded in the Resolution above read, which applies to Ordinary as well as Extraordinary works for which Capital and Revenue Accounts are kept, the Governor-General in Council has been pleased to rule that the cost of remitting money to England to meet the expenditure

incurred by the Secretary of State should be distinctly exhibited in all accounts, and statements of such works other than the Finance and Revenue Accounts, and that the amount of outlay thus incurred should be debited to a distinct head "Loss by Exchange." Provision for such charge should, of course, be made in the estimates of the works concerned in precisely the same way as Establishment or Tools and Plant is estimated for. Pending the issue of further orders, this provision may be made at the rate of 1*s.* 10*d.* per rupee. In estimating probable returns from the works concerned, the probable charge for exchange on English transactions should also be taken to account.

2. As the outlay in England on State Railways is not debited in the Home accounts to the Railways on which the stores are likely to be used, the charge for each year will be calculated on the whole of the payments during such period by the Accountant-General, Public Works Department, and will be distributed by that officer, in communication with the Director of State Railways and the other authorities concerned, to the several Railways in proportion to the expenditure in England charged to each Railway during such year. In cases of transfer of stores procured from England from one Railway to another, or from a Railway to an Irrigation or other work, a transfer to cover the charge for exchange due to the stores transferred should also be made by the Controllers concerned in communication with the Accountant-General, Public Works Department. In giving effect to these orders, it must be carefully remembered that no debits or credits on account of exchange are to be taken to account in the Finance and Revenue Accounts, but only in the administrative accounts of the department. The necessary instructions on this point will be issued by the Accountant-General, Public Works Department.

3. In the administrative Revenue Accounts of State Railways and Irrigation Works, a charge should be raised for loss by exchange on the value of all stores procured from England and debited to Revenue.

4. These orders are to have effect from 1867-68, and in order to admit of the necessary adjustment being now carried out, the average rates of exchange and the resulting charges for the State Railways for the several years are noted on the margin. The debits for loss by exchange should also be made on account of the payments in England for the purchase of the Calcutta and South Eastern State Railway and the Orissa Irrigation Works, as well as all other works for which Capital and Revenue Accounts are kept up. The Accountant-General, Public Works Department, should take the necessary steps to ensure that the arrear charges for exchange are included in the administrative accounts for 1875-76, and that the charges are regularly adjusted for the future.

Year.	Expenditure in England.	Rate of exchange.		Amount at that rate.	Amount at the rate of 2s. the rupee.	Amount of exchange.
	£	*s.*	*d*	RS.	RS.	RS.
1868-69 ...	338,655	1	11 123	35,14,993	33,86,550	1,28,443
1869-70 ...	79,213	1	11·25	8,17,682	7,92,130	25,552
1870-71 ...	50,463	1	10 52	5,37,794	5,04,630	33,164
1871-72 ...	146,853	1	11·1	15,25,745	14,68,530	57,215
1872-73 ...	299,092	1	10·76	31,53,870	29,90,920	1,62,950
1873-74 ...	954,735	1	10 347	1,02,53,564	95,47,350	7,06,214
1874-75 ...	1,031,557	1	10·221	1,11,41,428	1,03,15,570	8,25,858
Total...	2,900,568	...		3,09,45,076	2,90,05,680	19,39,396

ORDER.—Ordered that this Circular Resolution be communicated to the several Governments and Administrations noted on the margin, to the Director of State Railways, and to the Accountant-General, Public Works Department, for information and guidance.

Governments of Madras, Bombay, Bengal, North-Western Provinces and Punjab.
Chief Commissioners, Central Provinces, British Burmah, Oudh, Mysore, Assam and Andaman and Nicobar Islands.
Governor-General's Agents, Rajpootana and Central India, and the Resident at Hyderabad.

Ordered also, that a copy be forwarded to the Financial Department for information.

(Signed) C. H. DICKENS, Colonel, R.A.,
Secy. to the Govt. of India.

No. 208. ORDER THEREON, 8th November 1875, No. 3,195.

ACCOUNT, No. 4-B.

COMMUNICATED to the officers concerned for information and guidance.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 209. Read the following endorsement of the Consulting Engineer for Railways, dated Madras, 30th October 1875, No. 586 :—

From R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Madras, 4th October 1875, No. 1,034.

WITH reference to your letter, No. 838, of the 12th September 1873, I have the honor to quote as follows, for your information, from a letter addressed to me by the Chief Engineer, No. 750, of the 2nd instant : —

" I beg to inform you that as far as we can judge, considering the comparatively short time which has elapsed since the application of the solution of silicate to the brickwork of the Central Station House, the process may be said to be fairly successful.

" The application of the solution was commenced in May 1874 and finished in December of the same year ; and, except in cases where bricks had previously been deeply eroded, no deterioration is apparent on the face of the brickwork.

" The brickwork of the boundary wall of the Central Station which was not subjected to the silicating process is so decayed as in many places to require renewal."

SUBMITTED for the information of Government, with reference to the Proceedings of Government, No. 2,413, dated 1st October 1873.

2. The results of the silicating process appear to be satisfactory in arresting the decay of brickwork. In inspections of the Central Station it has been observed that the well (or slightly over) burnt bricks are in nearly all cases sound. Great care is

apparently required in the selection of face-bricks when the material cannot be fully relied upon.

(Signed) W. H. COAKER, Captain, R.E.,
for *Consulting Engineer for Railways.*

No. 210. ORDER THEREON, 8th November 1875, No. 3,196.

RAILWAY, No. 33.

THE remarks on the present occasion seem to have been confined to the result of operations conducted in 1874 only. The present state of the brickwork experimented on in 1872 and 1873, as recorded in G. O., Nos. 2,806 and 2,413, of 29th November 1872 and 1st October 1873, should be again reported on.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 211. Read the following letter from Major C. J. SMITH, R.E., Officiating Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 18th October 1875, No. 567 :—

I HAVE the honor, with reference to this office endorsement, No. 455, dated 19th August 1875, to forward a plan and estimate* of the cost of constructing a catch siding at the Arcot Station.

Vide G.O., No. 2,449, dated 27th Aug. 1875.

* Amounting to Rupees 2,192.

	RS.
Indian	768
English	1,424
Total ...	2,192

2. I quite agree with the Railway Authorities as to the necessity for the work as a precautionary measure, and recommend it for sanction.

3. Funds are available from Schedule B., "Unforeseen requirements," in the Budget Estimate for 1875-76, and the sanction will lapse at the end of the fourth quarter after its receipt. The work has not been entered in any of the half-yearly schedules.

No. 212. ORDER THEREON, 8th November 1875, No. 3,197.

RAILWAY, No. 34.

THE estimate is sanctioned.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 212. Read the following letter from A. WEDDERBURN, Esq., Collector of Coimbatore, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Coimbatore, 16th October 1875, No. 79:—

I HAVE the honor to submit certain correspondence relative to the advisability of filling up a stagnant ditch on the west of the railway, formed by excavation for the embankment.

1 Copy of correspondence.
1 Application from Gnanabaranum Pillay, dated 8th July 1875.
1 Letter from the Resident Engineer, dated 7th August 1875, No. 604.
1 Sketch.
1 Letter from the Consulting Engineer for Railways, No. 1,389, of 11th October 1875, (the last four to be returned.)

2. The Railway department are of opinion that it is convenient to retain this ditch, from which to extract earth when the tank is full, but as then the ditch is *also* full of water such reason cannot be advanced.

3. If this ditch were filled up, it would improve and bring to one level the tank reclamation on the west of the embankment.

4. If any earth is wanted for the embankment it will be more advantageous to obtain it from the bed of the tank, dry for more than half the year, whereby the capacity of the tank will be increased, than by digging holes under the embankment and increasing the tendency of the embankment to slide.

5. A plan of the spot is enclosed.

From M. GNANABARANUM PILLAY, to A. WEDDERBURN, Esq., Collector of Coimbatore, dated 8th July 1875.

IN the bed of the Valankolam Tank, to the west of the railway line and adjoining to my land, which I purchased and now enjoy, a plot of ground temporarily used by the Railway Department (Class B.) for excavation of earth was kindly granted to me by your honor, and I have included it with my land and intend to fill up the pit with town sweepings, &c., with your permission. The Railway Department, perhaps ignorant of the grant of the land to me, still enter upon it for the purpose of digging earth, alleging that they have not actually made over charge of it. They did so on one occasion after the land was granted to me. The Railway Department could well dig up earth from the bed of the tank on the eastern side of the line. This would not only allow me to make use of the land at once, but it would also fulfil the intention that the bed of the tank should be deepened, and the pit in the land in question will then be soon filled up by which means a source of discomfort to the public (because the stagnant water there especially, when the tank receives a supply of water is likely to produce an effluvia) would be removed.

2. I therefore request that your honor will arrange with the Railway Department that they may in future make use of the bed of the tank to the east of the line for excavation purposes, and that they may not enter upon the land in question, as it has been granted to me, and as the use they make of that prevents me from improving it.

From F. B. HANNA, Esq., Resident Engineer, 4th Division, to A. WEDDERBURN, Esq., Collector of Coimbatore, dated Pothanore, 7th August 1875, No. A/86,704.

IN reply to your letter, No. 25, of 23rd ultimo, I have the honor to state that I have no authority to allow persons to cultivate Class B. land held by the Company, and that therefore I am unable to comply with the request made in Gnanabaranum Pillay's letter, which is herewith returned.

2. After examination of the ground too I am of opinion that it would be inconvenient for the Company to give up the piece of B. land in question, as it is the most suitable place, particularly when the tank is full as at present, from which to obtain earth for making up the embankment across the tank, which has not yet become consolidated and which sinks several inches after heavy rain.

From Major C. J. SMITH, R.E., Officiating Consulting Engineer for Railways, to A. WEDDERBURN, Esq., Collector of Coimbatore, dated Madras, 11th October 1875, No. 1,389.

IN reply to your letter, dated 24th August 1875, No. 28, I have the honor to inform you that the question of the restoration of the portion of Class B. land therein referred to having been fully investigated, I am of opinion that the Railway Company cannot at present be called up on to relinquish the same, as it is the most convenient place from which to obtain earth for the up-keep of the embankment through the tank. Looked at in a financial point of view the extra cost involved in bringing earth for making up the embankment from any other site would greatly exceed the revenue which would be derived from the land in question.

2. In reply to my suggestion that a large portion of the Class B. lands on the Nilgiri branch might now be handed back to Government, the Agent states that the Chief Engineer considers that the whole of such land on the west side, with the exception of the piece lying immediately south of the Coimbatore station, can at once be restored, and arrangements will be made for doing this. It is considered advisable to retain for the present the land on the east side, as the embankment is not entirely consolidated, and occasionally requires making up from the side cuttings.

3. The enclosures* received with your letter are herewith returned.

* 1 Application from Gnanabaranum Pillay.
1 Letter from the Resident Engineer.
1 Sketch.

No. 214. ORDER THEREON, 8th November 1875, No. 3,198.

ESTABLISHMENT, No. 17.

HIS Excellency the Governor in Council is not disposed to insist on the relinquishment by the Railway Company of the portion of Class B. land in question, of which they desire to retain possession for a time.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 215. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 5th November 1875, No. 603:—

I HAVE the honor to report, for the information of Government, that the Deputy Consulting Engineer inspected on the 24th ultimo and passed for traffic the single 20 feet girder opening at mileage 173-2, North-west Line, to replace a 6 feet culvert destroyed in the floods of last year.

2. Captain Coaker's note of inspection is enclosed.

NOTE.

I HAVE the honor to report that on the 24th ultimo I inspected the new bridge of one 20 feet girder opening at mileage 173-2, North-west Line, Madras Railway, which was reported as ready for traffic. The masonry of Cuddapah limestone appeared to be of excellent quality, and although the erection of the girders and permanent-way was not in every respect complete, there appeared to be no objection to the passage of trains under the protection of caution signals. Some of the lewis bolts for holding down the girders were not fixed and a few trenails were also wanting. I understood that the caution signal would be kept up for some days, during which it is presumed the deficiencies noted will have been made good.

MADRAS, 5th November 1875.

(Signed) W. H. COAKER, Captain, R.E., *Deputy Consulting Engineer for Railways.*

No. 216. ORDER THEREON, 8th November 1875, No. 3,199.

RAILWAY, No. 35.

ORDERED to be recorded.

(Signed) G. W. WALKER, Major-General, R.E., *Secretary to Government.*

Read the following papers: —

No. 217. From Colonel C. H. DICKENS, R.A., Secretary to the Government of India, Public Works Department (Account—General), to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department, dated Simla, 30th September 1875, No. 610 A.—G.

IT appears from a despatch from the Secretary of State that Mr. W. Clark, the Civil Engineer deputed to Madras to inquire into the drainage works of that city, was engaged for the duty for a fixed sum of £3,000 inclusive of all travelling and other incidental expenses, of which £500 was paid to him in England in November 1874, and £1,900 in June 1875.

2. As these sums have been debited to Madras in the Home accounts current for the quarters ending the 31st March and 30th June 1875, the Government of India would desire to be informed, after reference if need be to the Local Accountant-General, to what precise heads, *viz.*, Municipal, Local or Provincial Funds, the amounts have been debited in the Madras accounts, and from what source the payment of £600 understood to have been made in India to Mr. Clark has been provided.

No. 644.

REFERRED to the Financial Department.

OOTACAMUND, 11th October 1875.

(Signed) G. W. WALKER, Major-General, R.E., *Secretary to Government, P.W.D.*

No. 582.

Referred to the Accountant-General for report of the precise heads under which the payments stand in his accounts.

Ootacamund, (Signed) D. F. CARMICHAEL,
14th October 1875. *Officiating Chief Secretary.*

From E. RULE, Esq., in charge of the Office of Accountant-General, Madras, to the Hon. D. F. CARMICHAEL, Officiating Chief Secretary to Government, dated Fort St. George, 16th October 1875, No. 425.

With reference to your endorsement, No. 582, dated 11th instant, on letter from Secretary to Government of India, Public Works Department, inquiring the head of account to which certain sums paid to Mr. W. Clark stand debited, I have the honor to report that the payments in England to that gentleman have not as yet been adjusted in the books of this office, as the accounts current for the quarters ending the 31st March and 30th June 1875 have not been received as yet from England.

2. The payments made to him at the Presidency stand debited to "Suspense Account," Provincial Services, pending orders of Government which were solicited in this office letter, No. 134, dated 21st May 1875.

No. 2,074.

Transferred to the Public Works Department.

Ootacamund, (Signed) D. F. CARMICHAEL,
18th October 1875. *Officiating Chief Secretary.*

Nos. 218 & 219. Order thereon, 8th November 1875, No. 3,200.

ACCOUNT, No. 4-C.

Ordered that copy of the Accountant-General's letter above recorded be forwarded to the Government of India, and that the following be despatched.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 220. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Government of India, P.W.D., dated 8th November 1875, No. 3,201.

ACCOUNT, No. 4-D.

Sir,—With reference to your letter, No. 610, dated 30th September 1875, I am directed by His Excellency the Governor in Council to forward the enclosed copy of G.O., No. 3,200, dated 8th

November 1875, in which is printed a letter from the Accountant-General, Madras, stating that payments made on account of the preliminary operations in connection with the Drainage Scheme for the city of Madras stand debited to "Suspense Account."

2. The Honorable the Governor in Council proposes to debit this amount eventually as preliminary charges to the Loan amount, regarding which the Government of India have been addressed. In the meanwhile he desires that it may remain in "Suspense."

No. 221. Read the following letter from Colonel F. J. MOBERLY, R.E., Superintending Engineer, Chingleput, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Guindy, 19th October 1875, No. 3,032 :—

I HAVE the honor to request the instructions of Government for my future guidance under the following circumstances.

2. Serjeant Armitage, Overseer in the Cantonments of Palaveram, Poonamallee, and the Mount, applied for medical aid to Surgeon-Major Dickinson on the 20th September for an ulcer in his leg ; it was treated at once, but on the 23rd it was so much worse that the Surgeon-Major put him on his sick list, forbidding him to perambulate the Cantonments, which is his principal duty.

3. As Surgeon-Major Dickinson would not give him a certificate, I could not grant him any leave, nor keep any other Overseer on the half-pay which Serjeant Armitage would have forfeited during the probable period of his absence, of which I could form no opinion.

4. In refusing a certificate and putting the Overseer on his sick list, Dr. Dickinson does not appear to appreciate our difficulty as to supplying the necessary supervision for a large amount of work in progress.

5. The form of certificate given in Section 28, Chapter XIII., of the Civil Leave Code, is perhaps not suited for such short periods as that in question, but some modification of it would be useful in enabling officers to arrange for the absence of their subordinates.

6. I may observe that I find other medical officers do not object to this form even for short periods.

No. 222. ORDER THEREON, 8th November 1875, No. 3,202.

ESTABLISHMENT, No. 18.

THE subject will be referred to the Surgeon-General, Indian Medical Department, for disposal, with reference to the instructions issued by him for the guidance of Medical Officers in Circular Memorandum, No. 2,428, dated 7th June 1866.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 223. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 3rd November 1875, No. 594 :—

I HAVE the honor to forward, for such orders as may be deemed necessary, a letter* from the Acting Agent of the South Indian Railway Company, forwarding an enclosure from the Chief Engineer, in which that gentleman comments upon the Note of Inspection by the Officiating Consulting Engineer for Railways dealt with in the Order of Government, No. 2,969, dated 16th October 1875. A Note by the Deputy Consulting Engineer is enclosed.

* No. 940, dated 28th October 1875, with one enclosure.

From D. LOGAN, Esq., Acting Agent of the South Indian Railway, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Trichinopoly, 28th October 1875, No. 940.

IN acknowledging receipt of your letter, No. 716, together with a copy of G. O., No. 2,969, of the 16th instant, I have the honor to forward, herewith, a copy of a letter received from the Chief Engineer in answer to some of the questions in your letter.

2. The Chief Engineer has referred to three (*i.e.*, 1, 2 and 4) out of the four suggestions of the Officiating Consulting Engineer; with reference to the other (No. 3) I have to state that every Guard and Driver is furnished with a set of rules, which each is bound to carry about with him, and it is also imperative on Guard and Driver alike to record in their respective returns every infringement of rule and every evidence of carelessness or damage, or any matter at all affecting the safe working of the line.

3. With regard to the provision of additional brake-power, the Locomotive Superintendent is pressing forward with arrangements for putting brakes to his engines, and a steamer having just landed four passenger brake-vans at Negapatam, it is hoped that an additional van may shortly be added to each train. I suggested some temporary expedient in the meantime, but was informed that anything of the kind would take as long to get ready as the permanent brakes now being made or erected.

4. I have urged meantime extra caution on the attention of the Traffic and Locomotive Departments in working over the steep inclines during wet weather.

From the Chief Engineer, to the Agent of the South Indian Railway, dated Trichinopoly, 27th October 1875, No. 8,934.

I HAVE to acknowledge receipt of your letter, No. $\frac{7073}{3816}$, of 28th October, giving cover to copies of a letter* from the Officiating Consulting Engineer for Railways, and G. O., No. 2,969, of the 16th instant, and directing me to report on the measures taken in connection with the line watchmen to prevent, as far as practicable, the possibility of accident.

* No. 716 of 19th instant.

2. I observe with regret that our arrangements are characterised as wanting in organization, because I have labored hard to make them as perfect as the means at my disposal would permit, and I trust that Government may modify their opinion when they learn what my arrangements really have been and now are.

3. As far back as December last (1874), I issued instructions to the Engineers between Trichinopoly and Madura that, as the line opened up to engine traffic, the gatekeepers and permanent platelayer gangs were to be engaged and drilled into their duties, in view of the opening of the Railway to public traffic. Mile watchmen were put on from time to time as required, and in June last I ordered a watchman to be put on every mile between Trichinopoly

and Tuticorin, with a view not only to watching the fences and property of the Company but to have the men early in training for open line duties.

4. Engineers, Inspectors, Gang Maistries, Watchmen and Gatekeepers were each furnished with the Book of Rules and Regulations, and we hold for the book from each man a receipt in duplicate setting forth that he has received a copy, and that he has read, or had it read to him and that he understands the Rules. One receipt is filed on the district or division to which the men belong, and the other is sent in to me that I may satisfy myself that the books have been issued and received.

5. I have from time to time both in writing and in person impressed upon Engineers the importance of taking measures to ascertain the degree of their subordinate's acquaintance with the rules and their practical application.

6. On the line between Trichinopoly and Madura which is open to the public, I know that the Engineers have from time to time questioned their people on these subjects, putting hypothetical cases to see whether they know how to act, not only under ordinary circumstances, but in cases of emergency.

7. I have myself from time to time inspected the line by day, and some parts of it by night, and paid special attention to the conduct of the platelayer gangs, mile watchmen, and gatekeepers, and I am of opinion that as a rule they fairly understand and act up to the rules.

8. The Guards and Drivers of trains hold instructions to be well on the look out, and to remember that the road staff is yet but a comparatively young and inexperienced one, and that therefore it must be supplemented by extra caution and vigilance on the part of the locomotive and traffic staff.

9. With reference to the four suggestions of the Officiating Consulting Engineer, they are simply descriptive of the measures which are always adopted on the line, and the system referred to as in force on the Madras Railway is identical with our own. It ought to be remembered, however, that on the Madras Railway the system has had the advantage of over fifteen years to drill and train the working staff, while on our new line we have not had the benefit of half as many months to organize and train our people.

10. I freely admit that the duty of check and inspection is not so readily carried out from the trains in the absence of mileage boards; and although we have always hitherto put these and other marks up after the press of getting the more emergent works done, I am not going to argue that it is not a better plan to have them exhibited from the first, and we have now got all mileage boards fixed, while the numbering of the telegraph posts is being rapidly proceeded with. The mile watchmen and gatekeepers as well as the platelayer gangs will soon be each supplied with large numbers to exhibit to passing trains.

11. I have as strong a staff of Inspectors and Assistant Inspectors as I can get, and I think they are quite equal to the work.

12. Regarding the so-called "breach" reported by the Officiating Consulting Engineer, Mr. Dredge, the Engineer of the District, informs me that he went back by trolly from the nearest station at once and examined the spot, and he considers that the mile watchmen had no occasion to exhibit a red flag, as the place was not unsafe, the ballast having been merely washed away from around the sleepers, but not in such a way as to endanger the safety of the train which passed over the place without stopping, as Major Smith reports, at 12 miles an hour.

13. It ought to be borne in mind that Major Smith passed over the line after thirty-six hours, during which 6 inches of rain fell, and since then we have had as much as 4 inches of rain in twelve hours. I was informed on my way from Madura the other day by an American Missionary who knows the country well, that he had seldom or never known rain for sixteen consecutive days falling in and around Madura as it has done during this month. Taking this into consideration, the softness of the new embankments through paddy-fields for the greater part of the way between Madura and Ammanaikanoor, and the newness of the working staff, I am of opinion that the line has been most efficiently guarded, and that the working staff deserve credit, for the fact that not a single accident or interruption has occurred through any imperfection of the line.

14. With reference to the other matters remarked upon by Major Smith, I have merely to say that he saw a line under construction, and consequently in an imperfect state. All the matters remarked upon have received and are receiving attention as *opportunity occurs* as they would do in any case.

15. With regard to the girder bridge where some spikes were omitted, the man in fault has been cautioned, and Government may rest quite assured that so far as in me lies nothing is left undone that can be done to induce caution and avoidance of loss of life, limb or property by any rashness.

16. For my own part, and I think I may say the same for the Engineers under me, that Major Smith is in error where he states that "engineering considerations have been held to outweigh all others, owing to which accidents will occur and oversights be frequent." I beg most emphatically to disclaim such a course. I have at all times personally and in writing cautioned those under my orders that the public safety is to be the very first consideration, and in no instance that I am aware of has this been deliberately sacrificed to engineering consideration.

Note by the Deputy Consulting Engineer for Railways.

THE following facts admitted by the Chief Engineer forcibly attest the truth of my statement to Government that under great pressure engineering considerations necessarily outweigh others.

(1.) That trains carrying from 300 to 500 passengers are at the present time, and have been through the weather described by the Chief Engineer, running with brake-power inadequate in such weather to save them from running into a breach even if it be seen in time to apply the brakes; the reason being that the extra brakes that would have been otherwise put on are required for the material trains.

(2.) That a bridge has been used for engine traffic in an eminently dangerous condition owing to the omission of certain fastenings due to an oversight under pressure of work.

(3.) That certain measures admittedly of ultimate importance have been and are still incomplete under pressure of more emergent work.

2. The tone of the whole paragraph in which the expression complained of occurs and the tenor of the Government Order alike disclaim any such interpretation as is imputed to it by the use of such words in the Chief Engineer's last paragraph as "deliberate" and "sacrificed."

3. It was because I knew that Madras Railway experience has in a long course of years clearly demonstrated that full and general instructions from head quarters, however exhaustive, invariably fail to secure the desired object unless followed up by the "system of numbering" and "espionage by trains" that I felt convinced that without them the Chief Engineer was trusting to a broken reed, was asking more of his staff than they could, in the absence of these measures, secure. I knew that the imperfections in training which the Chief Engineer regards as inseparable from a new system would quickly vanish when the power of identification of "men" and "beats" was established, and I knew that the Chief Engineer admitting the ultimate necessity failed to recognise the immediate importance of these measures. I knew also that even if rule books were carried (the Driver I asked had none) without the numbering system, they must be comparatively useless. I saw that the watchmen, after some months employment, made small progress; it was therefore that I asked for that expression of opinion on the part of Government which it is now desired by the Chief Engineer to have modified or withdrawn.

4. There has clearly been a misapprehension somewhere on the subject of the "small breach" referred to, as the Resident Engineer kindly accompanied me on the engine plate to Dindigul, 26 miles further north; it was therefore probably thence that he returned at once to see to the repairs. I have no doubt whatever that the appearance of the damage as a simple "breach in a bank" to a bystander would be very different indeed to its appearance from the buffer plank of a locomotive engine to a man in the act of crossing it. Its effect, however, on the engine leaves no doubt on my mind whatever as to the propriety of exhibiting a red flag.

5. I intended to convey in my paragraph* that the engine when running 12 miles an hour came upon a "small breach" and could not avoid passing over it; not that the engine went at that speed over the spot.

* No. 9 (4.)

6. The line for some miles after the rain described by the Chief Engineer was in a very dangerous condition; such a state of things is now and will be for some time unavoidable during and after heavy rain, and there is but one remedy "efficient watching."

MADRAS, (Signed) C. J. SMITH, Major, R.E.,
3rd November 1875. *Deputy Consulting Engineer for Railways.*

No. 224. ORDER THEREON, 9th November 1875, No. 3,203.

RAILWAY, No. 36.

HIS EXCELLENCY the Governor in Council is glad to receive the assurance contained in paragraph 10 of the letter from the Chief Engineer of the South Indian Railway of 27th October, that all mileage boards had then been fixed on the line, and that the numbering of the telegraph posts was being rapidly proceeded with, and that the mile watchmen and gatekeepers and plate-layer gangs will each soon be supplied with large numbers to exhibit to passing trains. It shows that he appreciates the practical bearing of the first and second suggestions made in the Deputy Consulting Engineer's report recorded with G. O., No. 2,969, of 16th October. As regards the third suggestion, it is not stated by him or the Agent that the Book of Rules *is* invariably carried by both Guard and Driver, and that they *do* keep the diary record recommended. This should be enforced on them, and the Consulting Engineer should state whether he is satisfied with the sufficiency of the rules for the purposes for which they are required. The Inspecting Staff is stated to be as strong as the Chief Engineer can get, and he considers them quite equal to their work; presumably including the work of training the watchmen, which is the point of the fourth suggestion.

2. His Excellency the Governor in Council has no doubt that all the elements of good organization existed on the South Indian Line under the able management of its Agent and Chief Engineer; but their full development was retarded by the circumstances under which the line was being temporarily opened for a special purpose; to attain which engineering considerations could not but practically outweigh others, however unintentionally. Whatever may have been the shortcomings in that respect, the Government must share a certain amount of the responsibility for them; as it was at their instance that the pressure has been put on, which has resulted in the working of heavy gradients without sufficient brake-power, and in the impossibility of securing sufficient attention from the superior staff to the training of the vast subordinate agency which a Railway brings into play.

3. His Excellency the Governor in Council is satisfied that the South Indian Railway authorities have no valid ground of objection to the remarks made by the Officiating Consulting Engineer whose report is throughout most eulogistic of the Railway Staff; but whose appreciation of his duties to the Government and the public called forth an opinion that more complete arrangements for the prevention of accidents were rendered necessary by the peculiar circumstances under which the line was being opened to traffic, an opinion in which the Government concurred and which they see no reason to change.

4. The opening of the Railway to Tuticorin by His Royal Highness the Prince of Wales will be considered to be only for that special occasion and for the return trip. After the latter, it shall be closed till the Consulting Engineer shall report himself to be entirely satisfied that an efficient system of working the line has been fully organized and carried out.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 225. Read the following letter from Captain ROSS THOMPSON, R.E., Officiating Consulting Architect to Government, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Chepauk, 7th October 1875, No. 231 :—

I HAVE been requested by the District Engineer of Madura to submit, for the consideration of Government, the accompanying comparative statement and revised estimate of Rupees 4,650 for constructing the "Napier Gateway" at Madura.

1 Comparative Statement.
1 Revised Estimate.
1 Proceedings of the Board of Revenue.

2. An estimate for this work, amounting to Rupees 5,260, was submitted to Government with Consulting Architect's letter, No. 113, dated 26th June 1874, printed with G.O., No. 2,503 A., dated 3rd September 1874.

3. The contributions for the work having fallen short of the estimated amount, Mr. Chisholm furnished the District Engineer of Madura with a modified design and estimate.

4. It will be observed from the accompanying copy of the Revenue Board's Proceedings, No. 2,855, of 2nd October, that a sum of Rupees 4,153-7-9 has been collected, so that the balance required to be sanctioned by Government to complete the work is Rupees 496-8-3.

Proceedings of the Board of Revenue, dated 2nd October 1874, No. 2,855.

Read the following letter from W. McQUHAE, Esq., Collector of Madura, to J. GROSE, Esq., Secretary to the Board of Revenue, dated Pereacolum, 16th June 1874, No. 164.

WITH reference to paragraph 5 of the Proceedings* of Government, dated 5th August 1872, No. 1,839, Public Works Department, I hav the honor to state that a subscription of Rupees 4,153-7-9 has been collected up to date for the Napier Gateway. Of this Rupees 500 has been paid to the District Engineer for commencing the work, and Rupees 3,653-7-9 have been credited in the Public Works Accounts as private contributions, and I request that this sum may be placed at the disposal of the Department of Public Works through the Accountant-General.

* Board's Miscellaneous No. 5,887, dated 24th August 1872.

THE Controller of Public Works Accounts is requested to arrange for the sum of Rupees 3,653-7-9 referred to by the Collector to be placed at the disposal of the District Engineer.

(A true Copy and Extract.)

(Signed) J. GROSE,
Secretary.

No. 226. ORDER THEREON, 9th November 1875, No. 3,204.

CIVIL WORKS, No. 16.

IT is observed that the District Engineer's estimate differs from that of the Consulting Architect in four items only, and in round numbers which are just as much guessed at as estimated, *viz.* :—

	Excess.
	RS.
Block stone shafts, polished...	200
Ornamental capital	50
Contingencies	100
Superintendence	150
Total ..	500

2. Also that the amount of subscriptions is exactly that of the Consulting Architect's estimate. Should there be any actual necessity for exceeding the latter, His Excellency the Governor in Council will permit such actual excess, not exceeding Rupees 500, to be defrayed from the Provincial Budget allotment for the Madura Palace Works.

(Signed) G. W. WALKER, Major-General, R.E.,

Secretary to Government.

No. 227. Read the following letter from Captain J. L. L. MORANT, R.E., District Engineer, Nilgiris, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Ootacamund, 2nd November 1875, No. 353 :—

WITH reference to Public Works Department G.O., No. 2,844, of the 2nd October 1875, I have the honor to forward for sanction a plan and estimate, amounting to Rupees 2,560, for adding a room for clerks to the Stonehouse Secretariat. The former estimate of Rupees 2,000 was for a smaller room. The modification proposed in your office is a much more convenient arrangement, but can only be carried out at a slight increase of cost. Provision is solicited for the balance of Rupees 560.

No. 228. ORDER THEREON, 9th November 1875, No. 3,205.

CIVIL WORKS, No. 16-A.

THE revised estimate, amounting to Rupees 2,560, is sanctioned. Rupees 2,000 having already been allotted, the work will be proceeded with and the balance applied for when wanted.

(Signed) G. W. WALKER, Major-General, R.E.,

Secretary to Government.

No. 229. Read the following letter from W. A. GOODCHAP, Esq., District Engineer, Kurnool, to Major-General G. W. WALKER, R.E., Chief Engineer, Public Works Department, dated Kurnool, 20th October 1875, No. 57 :—

WITH reference to G. O., No. 2,772, dated the 1st October 1874, I have the honor to report that, out of the office furniture sanctioned in those Proceedings, the following articles have to be purchased in the current official year :—

	RS.	A.	P.	RS.	A.	P.
District Office.						
1. Scale ...				7	8	0
Nandial Range.						
Tent (Office) ...	116	0	0			
Clock ...	30	0	0			
Stool ...	3	0	0	149	0	0
Cumbum Range.						
2. Armless Chairs ...	7	0	0			
Tent (Office) ...	116	0	0			
Clock ...	30	0	0	153	0	0
Total ...				310	0	0

2. I request that you will be good enough to place funds at my disposal for the above articles at your earliest convenience.

3. I beg to bring to your notice the inconvenience this office is put to for want of a binding press and a table for mounting plans on. The Muchee now employed is a good binder, but he has no tools to work with (there are no private binders in Kurnool), and for want of a table he is unable to mount standard plans and village maps of a large size.

4. Under these circumstances, I beg that you will be good enough to obtain the sanction of Government to the enclosed estimate* for the articles referred to above.

* Will follow.

No. 230. ORDER THEREON, 9th November 1875, No. 3,206.

ACCOUNT, No. 5.

THE sum of Rupees 310 required for purchase of office furniture, &c., in the Kurnool District, is allotted from the amount held at the disposal of Government in paragraph 6 of G. O., No. 2,956 dated 15th October 1875.

2. Under the explanation given in paragraph 3 of the above letter, an additional grant of Rupees 60 is made from the same source for the purchase of a binding press and mounting table.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 231. Read the following circular from the Government of India, Public Works Department (Railway), to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department (Railway), dated Simla, 20th September 1875, No. 16 R. :—

THE undersigned is directed to forward, for information, a brief epitome prepared in this office of a report of an inspection of the Sutlej, Jumna, and Beas bridges, of the Scinde, Punjab, and Delhi Railway, accompanied by illustrative drawings.

(Signed) W. C. FURNIVALL,
Under Secy. to the Govt. of India.

No. 232. ORDER THEREON, 9th November 1875, No. 3,207.

RAILWAY, No. 36-A.

COMMUNICATED to the Consulting Engineer for Railways for information.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 233. Read the following letter from Captain J. L. L. MORANT, R.E., District Engineer, Nilgiris, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Ootacamund, 19th October 1875, No. 341 :—

WITH reference to Public Works G.O., No. 2,566, of the 8th ultimo, I have the honor to submit a slightly more ornate fence and a revised estimate amounting to Rupees 3,060.

No. 234. ORDER THEREON, 10th November 1875, No. 3,208.

CIVIL WORKS, No. 17.

THE revised estimate, amounting to Rupees 3,060, for the more ornate fence is sanctioned.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following :—

No. 1,275.

No. 235. *Note by the Chief Engineer for Irrigation.*

IN the Budget for the current year Rupees 5,000 have been provided for a head-luice for the Nathiyuny Anicut Channel from the Tambrapoorny. The District

Rupees 3,300.

From District Engr., No. 24, 26th April 1875.
To „ „ 496, 11th May „
From „ „ 53, 20th July „

Engineer, Tinnevelly, has forwarded a plan and estimate for this, the last of the head-sluices, the construction of which was in G.O., 20th January last, No. 256, ordered to be undertaken, and it will be seen that the design has been revised, and that the District Engineer is of opinion that the arrangements as therein proposed are sufficient for security and for the effective supply of the irrigation.

No. 86, 18th ultimo.

2. Mr. Grant in a recent letter applies for the transfer of the grant to the Cannadien and Pauliem Channel head-sluices on the ground that the allotments for these works are insufficient and that no money will be required for the Nathiyuny Sluice this year. It having, however, been decided that all the sluices are to be constructed as soon as possible, this, though perhaps of less importance than others, should not be deferred, and the collection of materials should be gone on with, and as much as possible done in getting in foundations and flooring during the next dry season, so that by this time next year the sluice may be finished or sufficiently so to exclude floods.

3. It is therefore recommended that Rupees 1,500 be reserved for expenditure in this year on the Nathiyuny Sluice, and that the balance of Rupees 3,500 be transferred to—

	RS.
Cannadien Sluice	1,500
Pauliem do.	2,000

The further grant required for the Pauliem Sluice may be made available from the sums surrendered by the Collectors of Kurnool and Cuddapah out of provision for land compensation, Madras Irrigation and Canal Company's Canal, about to be reported to Government.

FORT ST. GEORGE,
3*rd November* 1875.

(Signed) A. DEC. SCOTT, Major, R.E.,
for *Chief Engineer for Irrigation.*

CAPITAL—ORDINARY—TAMBRAPOORNY IRRIGATION.

ABSTRACT ESTIMATE OF 1875-76.

Tinnevelly District, Ambasamoodrum Taluq.

WORK.—Constructing a Head-sluice for Nathiyuny Channel.

Quantities.	Description of Work.	Rate.	Amount.	Total.
		RS. A. P.	RS. A. P.	RS. A. P.
15½	Cubic yards of concrete, at	3 8 0	54 4 0	
75¾	Do. of brickwork in hydraulic mortar, at	5 8 0	416 10 0	
175	Do. of do. in mortar, at ...	5 0 0	875 0 0	

WORK.—Constructing a Head-sluice for Nathiyuny Channel.—(*Concluded.*)

Quantities.	Description of Work.	Rate.			Amount.			Total.		
		RS.	A.	P.	RS.	A.	P.	RS.	A.	P.
14½	Cubic yards of archwork, at	6	8	0	94	4	0			
30¾	Do. of cut-stone in mortar, at ...	25	0	0	768	12	0			
1,756	Square feet of pointing, per square ...	3	0	0	52	10	10			
22	Cubic yards of loose rough stone for revetment, at	2	8	0	55	0	0			
16½	Do. do. for apron, at	2	0	0	33	0	0			
8	Cubic feet of Pangay or Congoowood wrought and put up, at	3	0	0	24	0	0			
2	Teakwood shutters with iron lifting bolts and all fittings, &c., complete, at ...	230	0	0	460	0	0			
	Excavation for foundation and filling in ..	...			45	0	0			
	Temporary embankment and diversion channel	...			50	0	0			
	Baling	...			50	0	0	2,978	8	10
	Extra establishment	...			...			120	0	0
	Scaffolding, sundries, and contingencies, including huts for lascars	...			...			201	7	2
	Total of estimate ...	...			...			3,300	0	0

No. 236. ORDER THEREON, 10th November 1875, No. 3,209.

IRRIGATION, No. 13.

Account.

THE estimate, amounting to Rupees 3,300, for constructing a head-sluice to the Nathiyuny Channel in Tinnevelly is sanctioned, and its amount being less than the Budget allotment of Rupees 5,000 and only part of the work being capable of being carried out this year, the allotment will be reduced to Rupees 1,500, and the following transfers are authorized :—

	RS.
To Cannadien Channel Head-sluice	1,500
To Pauliem do do.	2,000

2. A further appropriation on account of the last-named sluice will be made in due course.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 237. Read the following letter from Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 6th November 1875, No. 43 :—

I HAVE the honor to submit the following report on the expenditure incurred on the works of the Madras Irrigation and Canal Company during the quarter ended 30th June 1875.

Expenditure during the Quarter.—The total expenditure for the period under review amounted to Rupees 4,033, as compared with Rupees 4,396 in the previous quarter.

2. The following is a statement, in tabular form, of the items on which the above outlay was made :—

Number of Section or Name of Work.	Amount. RS.	A.	P.	Nature of Expenditure.
Main Supply.				
3rd Section	1,167	9	6	Ulloor Bridge.
6th do.	714	15	2	Bridge over Cumbalpully Sluice.
7th do.	74	14	4	Special Superintendence and Sundries.
9th do.	1,914	11	11	Beempaud Bridge.
Anicut and Head-works at Somaiswaram.	43	1	2	Special Superintendence and Sundries.
Buildings.				
Office, Store, and Workshop at Kurnool.	109	7	1	
Overseers' houses at Beempaud and Ayaloor...	7	15	6	
Total ...	4,032	10	8	

3. *Abstract of Expenditure.*—The following statement shows the expenditure on all works from the commencement to the close of the qu arter compared with sanctioned estimates :—

Works.	Amount of Estimate.	Expenditure up to 31st March 1875.	Cost during the Quarter ended 30th June 1875.	Total Expenditure.	Add Amount transferred to this from other Works.	Deduct Refund from this to other Works.	Total Net Expenditure.	AMOUNT. Available.	AMOUNT. Increase of Estimate.
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
Main Supply.									
Anicut and head-works at Kurnool ...	3,03,080 0 0	60,731 1 3	...	60,731 1 3	...	...	60,731 1 3	2,42,348 14 9	...
Do. do. at Soonkasala ...	4,89,322 0 0	4,77,402 12 0	...	4,77,402 12 0	...	...	4,77,402 12 0	11,919 4 0	...
Do. do. at Somaiswaram	1,71,727 1 7	68,070 4 2	43 1 2	68,113 5 4	...	21 8 7	68,091 12 9	1,03,635 4 10	...
Do. do. at Adamapully...	4,38,233 1 11	4,35,122 10 8	...	4,35,122 10 8	...	...	4,35,122 10 8	3,110 7 3	...
Aqueduct across the river Hindry ...	2,80,118 0 0	2,80,542 5 0	...	2,80,542 5 0	...	...	2,80,542 5 0	...	424 5 0
Canal for one mile from the head-sluice of the Kurnool Anicut	65,000 0 0	49,615 0 9	...	49,615 0 9	...	...	49,615 0 9	15,384 15 3	...
Main Canal, 1st Section, 17¼ miles ...	11,16,662 6 11	11,18,358 13 5	...	11,18,358 13 5	...	...	11,18,358 13 5	...	1,696 6 6
Do., 2nd do., 18th to 32nd mile.	20,21,299 3 3	20,23,985 12 2	...	20,23,985 12 2	...	...	20,23,985 12 2	...	2,686 8 11
Do., 3rd do., 33rd to 43rd do.	9,85,811 0 10	9,32,701 2 6	1,167 9 6	9,33,868 12 0	...	...	9,33,868 12 0	51,942 4 10	...
Do., 4th do., 44th to 60th do.	10,76,312 8 9	10,04,897 4 7	...	10,04,897 4 7	...	...	10,04,897 4 7	71,415 4 2	...
Do., 5th do., 61st to 72nd do.	8,88,993 10 11	8,90,340 1 1	...	8,90,340 1 1	...	...	8,90,340 1 1	...	1,346 6 2
Do., 6th do., 73rd to 92nd do.	9,47,934 4 8	8,78,394 5 8	714 15 2	8,79,109 4 10	...	...	8,79,109 4 10	68,824 15 10	...
Do., 7th do., 93rd to 113th do.	7,66,995 12 2	6,96,522 7 5	74 14 4	6,96,597 5 9	93 11 5	0 13 2	6,96,690 4 0	70,305 8 2	...
Do., 8th do., 114th to 143rd do.	8,36,550 13 8	8,37,878 4 3	...	8,37,878 4 3	92 5 2	...	8,37,970 9 5	...	1,419 11 9
Do., 9th do., 144th to 178th do.	9,62,114 8 4	8,05,422 8 8	1,914 11 11	8,07,337 4 7	92 5 2	...	8,07,429 9 9	1,54,684 14 7	...
Do., 10th do., 179th to 186th do.	2,57,265 11 2	1,96,526 0 6	...	1,96,526 0 6	92 5 3	...	1,96,618 5 9	60,647 5 5	...
Total ...	1,16,07,420 4 2	1,07,56,510 14 1	3,915 4 1	1,07,60,426 2 2	370 11 0	22 5 9	1,07,60,774 7 5	8,54,219 3 1	7,573 6 4
Distribution.									
Branch channels and sluices of 1st section	7,002 15 5	5,727 1 8	...	5,727 1 8	...	...	5,727 1 8	1,275 13 9	...
Distribution works of 2nd Section ...	6,000 0 0	5,342 13 6	...	5,342 13 6	...	...	5,342 13 6	657 2 6	...
Do. do. of 3rd do. ..	11,175 8 0	10,524 1 10	...	10,524 1 10	...	...	10,524 1 10	651 6 2	...
Do. do. of 4th do. ...	47,101 14 0	34,657 2 9	...	34,657 2 9	...	...	34,657 2 9	12,444 11 3	...
Constructing a bund across the canal in the 45th mile of do.	76 0 0	74 7 5	...	74 7 5	...	...	74 7 5	1 8 7	...
Distribution works of 5th section ...	21,076 10 8	10,248 12 8	...	10,248 12 8	...	...	10,248 12 8	10,827 14 0	...
Do. do. of 6th do. ...	72,838 5 4	44,922 5 1	...	44,922 5 1	...	...	44,922 5 1	27,916 0 3	...
Do. do. of 7th do. ...	47,517 9 6	23,002 5 5	..	23,002 5 5	...	...	23,002 5 5	24,515 4 1	..
Do. do. of 8th do. ...	61,650 8 8	43,382 3 3	...	43,382 3 3	...	...	43,382 3 3	18,268 5 5	...
Do. do. of 9th do. ..	51,175 4 0	35,633 2 4	...	35,633 2 4	...	...	35,633 2 4	15,542 1 8	...
Do. do. of 10th do. ...	15,017 3 1	11,852 0 3	...	11,852 0 3	...	...	11,852 0 3	3,165 2 10	...
Do. do. at Soonkasala ...	946 2 6	946 9 10	...	946 9 10	...	...	946 9 10	...	0 7 4
Kurnool Town water-supply ...	1,699 0 7	1,454 1 11	...	1,454 1 11	...	...	1,454 1 11	244 14 8	...
Total ...	3,43,277 1 9	2,27,767 3 11	...	2,27,767 3 11	...	...	2,27,767 3 11	1,15,510 5 2	0 7 4
Breach repairs of August 1870 ...	62,440 0 0	54,084 1 7	...	54,084 1 7	...	..	54,084 1 7	8,355 14 5	...

Buildings.									
Central Hospital with out-houses and compound wall at Kurnool	5,050 0 0	4,915 9 8	...	4,915 9 8	...	...	4,915 9 8	134 6 4	...
Repairs to do. do do. ...	68 0 0	60 10 1	...	60 10 1	...	...	60 10 1	7 5 11	...
Overseer's hut at Kurnool	1,244 13 3	...	...	...	...	...	...	1,244 13 3	...
Office, Store-house, and Workshop at Soonkasala	6,037 0 0	6,045 10 8	...	6,045 10 8	...	...	6,045 10 8	...	8 10 8
Powder Magazine, Store, and Station roads at Bowanassy	4,397 5 9	4,403 4 9	...	4,403 4 9	...	...	4,403 4 9	...	5 15 0
Office, Store-room, and Artificer's shed at Bowanassy	7,945 8 5	7,612 6 1	...	7,612 6 1	...	...	7,612 6 1	333 2 4	...
Improvement of the road approaching the above buildings and repairing culverts at Bowanassy	578 0 0	320 11 8	...	320 11 8	...	...	320 11 8	257 4 4	...
Converting the unfinished building intended for a Gun Powder Manufactory into a Hospital at Bowanassy ...	427 0 0	30 15 1	...	30 15 1	...	...	30 15 1	396 0 11	...
Office and Store buildings at Valapanore.	2,008 0 0	2,010 4 5	...	2,010 4 5	...	...	2,010 4 5	...	2 4 5
Repairs to Valapanore Bungalow ...	604 3 6	605 4 0	...	605 4 0	...	...	605 4 0	...	1 0 6
Overseer's house and Store at Valapanore	558 5 0	421 11 9	...	421 11 9	...	...	421 11 9	136 9 3	...
Office and Store at Jupaud in Nagatore Division	4,159 0 0	4,164 10 4	...	4,164 10 4	...	...	4,164 10 4	...	5 10 4
Repairs to Jupaud Bungalow in do. ...	1,000 0 0	368 10 5	...	368 10 5	...	...	368 10 5	631 5 7	...
Overseer's and Dresser's house at Jupaud in Nagatore Division	576 6 0	457 10 8	...	457 10 8	...	...	457 10 8	118 11 4	...
Office and Store at Puggydial in do. ...	3,977 7 7	3,871 12 8	...	3,871 12 8	...	...	3,871 12 8	105 10 11	...
Overseer's house at do. in do. ...	297 2 0	282 7 2	...	282 7 2	...	...	282 7 2	14 10 10	...
Office and Store at Chintagoontah in Koondaur Division...	5,324 0 0	5,331 4 11	...	5,331 4 11	...	...	5,331 4 11	...	7 4 11
Do. and temporary Store-shed at Ayalore in Koondaur Division ...	642 0 0	204 1 3	...	204 1 3	...	...	204 1 3	437 14 9	...
Repairs to Anicut Office at Zorapore ...	327 0 0	311 0 10	...	311 0 10	...	...	311 0 10	15 15 2	...
Office, Store, and Workshop at Kurnool...	30,612 0 0	17,141 6 1	109 7 1	17,250 13 2	9 1 0	...	17,259 14 2	13,352 1 10	...
Workshop Latrine at do. ...	148 3 0	141 11 6	...	141 11 6	...	...	141 11 6	6 7 6	...
Iron and Brass Foundry at do. ... } Room for receiving and despatching Stores at Kurnool ... ... }	15,327 15 4	15,320 4 3	...	15,320 4 3	...	...	15,320 4 3	7 11 1	...
Quarters for Sub-Assistant Engineer and Assistant Surveyors at Koondaur ...	1,236 0 0	566 15 4	...	566 15 4	...	...	566 15 4	669 0 8	...
Engineer's Bungalow at Dhoor ...	4,979 7 6	4,972 9 5	...	4,972 9 5	...	...	4,972 9 5	6 14 1	...
Store-keeper's huts...	3,200 0 0	2,916 8 9	...	2,916 8 9	...	...	2,916 8 9	283 7 3	...
Overseer's house at Beompaud and Ayalore	1,100 0 0	232 15 0	7 15 6	240 14 6	...	...	240 14 6	859 1 6	...
Total ...	1,01,824 13 4	82,710 8 9	117 6 7	82,827 15 4	1 0	...	82,837 0 4	19,018 10 10	30 13 10
Line of Telegraph ...	72,033 13 0	66,914 4 7	...	66,914 4 7	...	...	66,914 4 7	5,119 8 5	...
Grand Total ...	1,21,86,996 0 3	1,11,87,987 0 11	4,032 10 8	1,11,92,019 11 7	379 12 0	22 5 9	1,11,92,377 1 10	10,02,223 9 11	7,604 11 6

4. *Quarter's Expenditure.*—It will be remarked that the expenditure of the quarter is shown to have been Rupees 4,033, and the net total outlay, up to 30th June 1875, Rupees 1,11,92,377.

5. *Excess Expenditure.*—The subjoined statement shows the expenditure in excess of sanction at the end of the quarter to have been Rupees 7,604-11-6:—

Works.	Excess Expenditure on 31st March 1875.	Excess Expenditure during the Quarter, 30th June 1875.	Total.	Add transferred to this from other Works.	Deduct Refund.	Excess Net Expenditure on 30th June 1875.
Main Supply.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
Aqueduct across the river Hindry.	424 5 0	...	424 5 0	...	...	424 5 0
Main Canal, 1st Section ...	1,696 6 6	...	1,696 6 6	...	...	1,696 6 6
Do., 2nd do.	2,686 8 11	...	2,686 8 11	...	...	2,686 8 11
Do., 5th do.	1,346 6 2	...	1,346 6 2	...	...	1,346 6 2
Do., 8th do.	1,327 6 7	...	1,327 6 7	92 5 2	...	1,419 11 9
Total ..	7,481 1 2	...	7,481 1 2	92 5 2	...	7,573 6 4
Distribution.						
Distribution works at Soonkasala...	0 7 4	...	0 7 4	...	...	0 7 4
Buildings.						
Office, Store-house, and Workshop at Soonkasala	8 10 8	...	8 10 8	...	...	8 10 8
Powder Magazine, Store and Station roads at Bowanassy ...	5 15 0	...	5 15 0	...	...	5 15 0
Office and Store Buildings at Valapanore	2 4 5	...	2 4 5	...	...	2 4 5
Repairs to Valapanore Bungalow.	1 0 6	...	1 0 6	...	...	1 0 6
Office and Store at Jupaud ...	5 10 4	...	5 10 4	...	...	5 10 4
Do. do. at Chintagoontah.	7 4 11	...	7 4 11	...	...	7 4 11
Total ...	30 13 10	...	30 13 10	...	...	30 13 10
Grand Total...	7,512 6 4	...	7,512 6 4	92 5 2	...	7,604 11 6

The excess expenditure of Rupees 7,604 is owing to certain adjustments sanctioned by Government in their Proceedings, No. 2,927, dated 14th October 1874.

6. *Cost of Establishments.*—The cost of executive permanent Establishments amounts for this quarter to 22·3 per cent. on the expenditure for construction, that of temporary establishments to 3·1 per cent., and that of general management to Rupees 11·93 per cent.

7. *Total Cost of Establishments.*—The total cost of the permanent establishments was, therefore, 34·23, and of temporary establishments 3·1 per cent. on the expenditure

No. 238. ORDER THEREON, 10th November 1875, No. 3,210.

IRRIGATION, No. 14.

ORDERED that this Irrigation Report be forwarded to the Home Government.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 239. Read the following Proceedings of the Madras Government in the Revenue Department, dated 7th October 1875, No. 1,468:—

ABSTRACT.—*Tank Calingulahs in the Chingleput District.*—Communicating to the Public Works Department Proceedings of the Board of Revenue respecting the clearance of —, and concurring with the Board that Section 6 of Act I. of 1858 appears to meet the case of a refusal to clear a calingulah.

No. 240. ORDER THEREON, 10th November 1875, No. 3,211.

IRRIGATION, No. 15.

COMMUNICATED to the Chief Engineer for Irrigation, and to the Superintending Engineer, Chingleput.

2. The Government, while concurring with the Board of Revenue in disapproving of the tone of censure adopted by Colonel Mullins in his Memorandum, No. 636, of 12th June, desire to point out to the Board that the Collector should have given Mr. Crole an opportunity of explaining his contradiction of certain facts personally observed and reported by Colonel Moberly. This explanation could easily have been given, and it was discourteous to withhold it.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 241. Read the following paper :—

Memorandum of Capital Account (brought down to the 31st July 1875) showing the sums paid into, and withdrawn from, the Government Treasuries.

MADRAS RAILWAY.

	RS.	A.	P.		£	s.	d.
Amount paid by the Railway Company					£10,373,741	0	0
Do. withdrawn in England					£4,608,349	0	0
					£5,765,392	0	0
Sums withdrawn in India up to 31st July 1875	931,66,659	1	9				
Deduct— Amount transferred from Revenue Account as per orders of Government, including transfer adjustments up to 31st July 1875	334,22,514	6	9				
Cheques passed from 31st July 1875 to 9th November 1875 for Rupees 4,50,000 or £41,250.	597,44,134	11	0	or	£5,476,545	13	7
Balance on 31st July 1875...					£288,846	6	5

SOUTH INDIAN RAILWAY.

	RS.	A.	P.		£	s.	d.
Amount paid by the Railway Company					£3,659,505	0	0
Do. withdrawn in England					£1,930,349	0	0
					£1,729,156	0	0
Sums withdrawn in India up to 31st July 1875	157,51,402	3	9				
Deduct— Amount transferred from Revenue Account as per orders of Government, including transfer adjustments up to 31st July 1875	47,34,525	15	2				
Cheques passed from 31st July 1875 to 9th November 1875 for Rupees 7,20,000 or £69,000.	110,16,876	4	7	or	£1,055,783	19	7
Balance on 31st July 1875...					£673,372	0	5

(Signed) J. H. M. SHAW-STEWART, Lieut.-Colonel, R.E.,
Consulting Engineer for Railways.

MADRAS,
9th November 1875.

To the Secretary to Government, Public Works Department, Fort St. George.

A copy of this memorandum has been furnished to the Accountant-General.

No. 242. ORDER THEREON, 11th November 1875, No. 3,212.

RAILWAY, No. 36-B.

ORDERED that this statement be forwarded to the Home Government.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 243. From the Secretary to the Government of Fort St. George, Public Works Department, to the Under Secretary of State for India, dated 11th November 1875, No. 3,213.

RAILWAY, No. 36-C.

SIR,—I am directed to forward, for submission to the Most Honorable the Secretary of State for India, the accompanying statement which has been furnished by the Consulting Engineer for Railways, showing the Capital Account of the Railway Companies brought down to the 31st July 1875.

No. 244. Read the following letter from R. G. MACDONALD, Esq., Examiner of Railway Accounts, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 9th November 1875, No. 1,204:—

I HAVE the honor to report that in accordance with G.O., No. 3,156, dated 6th instant, I relieved Mr. S. M. Johnson yesterday of his duties, and instructed him to proceed forthwith and report himself to the Examiner of Railway Accounts, Bombay.

No. 245. ORDER THEREON, 11th November 1875, No. 3,214.

ESTABLISHMENT, No. 19.

ORDERED that the Government of India be informed accordingly.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 246. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Government of India, P.W.D., dated 11th November 1875, No. 3,215.

ESTABLISHMENT, No. 20.

SIR,—On receipt of your letter, No. 391 E.A., dated 29th October, instructions were issued for the immediate relief of Mr. Johnson. I am now directed to state that the relief was effected on the 8th instant, and that Mr. Johnson has received instructions to proceed to Bombay forthwith and report himself to the Examiner of Railway Accounts at that place.

No. 247. Read the following endorsement of the Consulting Engineer for Railways, dated Madras, 4th November 1875, No. 598 :—

From R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Madras, 2nd November 1875, No. 1,115.

WITH reference to my letter, No. 780, dated the 22nd of July last, I have the honor to report, for the information of Government, that I learn from the Chief Engineer that Mr. W. R. Robinson arrived at Bombay on Saturday, the 30th ultimo, and reached Madras last evening.

SUBMITTED for the information of Government.

2. The leave granted to Mr. Robinson is recorded in the Proceedings of Government, Nos. 1,941 and 2,270, dated 18th July and 6th August 1875, respectively.

(Signed) W. H. COAKER, Captain, R.E.,
for *Consulting Engineer for Railways.*

No. 248. ORDER THEREON, 12th November 1875, No. 3,216.

RAILWAY, No. 36-A.

ORDERED to be recorded.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following :—

No. 249. From the Ag. Deputy Collector of Cuddapah, dated 15th Oct. 1875.
No. 250. From the Collector of Kurnool, dated 16th October 1875.

No. 251. ORDER THEREON, 12th November 1875, No. 3,217.

IRRIGATION, No. 16.
Accounts.

IT appearing from the statements submitted by the Collectors of Kurnool and Cuddapah that, out of the Budget provision for the purchase of land for the Madras Irrigation and Canal Company, the following sums are not likely to be required :—

	RS.
Kurnool	2,000
Cuddapah	1,000

Rupees 1,500 of these surrenders will be transferred to the Pauliem Channel Head Sluice, Tinnevelly District, and the balance to Minor New Works, Agricultural.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following letters :—

No. 252. From T. D. HARRIS, Esq., Officiating District Engineer, Malabar, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Calicut, 16th September 1875, No. 91.

I HAVE the honor to forward, for sanction and provision of funds, an estimate* for additions and alterations to the Hospital at West Hill Barracks at Calicut. It has received the approval of the Officer Commanding the Provinces, and the work is being carried out at the urgent request of the Medical Officer of the Detachment, 43rd Light Infantry, Calicut.

* Rupees 118.

2. The allotment under Minor New Works, Military, is exhausted, but funds will be applied for later in the year.

No. 253. From T. D. HARRIS, Esq., Officiating District Engineer, Malabar, to Major A. DEC. SCOTT, R.E., Under Secretary to Government, Public Works Department, dated Calicut, 11th October 1875, No. 102.

IN re-transmitting the estimate† for additions and alterations to the Hospital at the West Hill Barracks at Calicut, received with your memorandum, No. 575, dated 27th September last, I have the honor to state that the Deputy Quartermaster-General of the Army in his letter, No. 6,110, dated 7th instant, intimates the approval of His Excellency the Commander-in-Chief to the estimate.

† Rupees 118.

No. 254. ORDER THEREON, 12th November 1875, No. 3,218.

MILITARY WORKS, No. 4.

THE estimate is sanctioned.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 255. Read the following letter from Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 6th November 1875, No. 1,283 :—

I HAVE the honor to forward, herewith, a Register of Lands taken up by the Madras Irrigation and Canal Company in the Cuddapah District, under Classes A and B, between the years 1872 and 1875, together with a bill, amounting to Rupees 200-6-2, for compensation to be paid thereon, and to request that you will be good enough to obtain the sanction of Government to the same.

No. 256. ORDER THEREON, 12th November 1875, No. 3,219.

IRRIGATION, No. 17.
Account.

SANCTIONED.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 257. Read the following :—

Statement showing the Sums Received and Disbursed at this Presidency, on account of the Madras Irrigation and Canal Company, during the Month of September 1875.

—	Receipts.		Disbursements.	
	Capital Account.	Revenue Account.	Capital Account.	Revenue Account.
Bank of Madras.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
Paid to the Chief Engineer and Manager of the Madras Irrigation and Canal Company as per credit order, No. 5, dated 24th Sept 1875.	...	...	...	23,393 0 0
Received from the Manager of the Madras Irrigation and Canal Company ...	...	230 2 0	...	...
Collector of Kurnool.				
Tax for water supplied by the Irrigation and Canal Co. realized in Sept. 1875.	...	898 3 6	...	...
Amount received in do. on account of assessment of land made over to the Company.	...	3 9 5	...	...
Amount of cheques paid on account of letter of credit issued by the Accountant-General ...	...	...	...	8,344 4 0
Collector of Cuddapah.				
Tax for water supplied by the Irrigation and Canal Co. realized in Sept. 1875.	...	681 3 8	...	...
Amount received in do. on account of assessment of land made over to the Company	...	...	...	...
Payments from the commencement, *viz.*, 1st October 1859 to 31st Aug. 1875, on Capital Account.	...	...	93,58,307 0 5	...
Do. do. to do. on Revenue Account	...	...	...	5,90,594 15 5
Receipts from do., *viz.*, 1st May 1865 to do. on Capital Account	1,68,417 5 9	...	...	...
Do. do., *viz.*, May 1865 to do. on Revenue Account.	...	2,15,361 6 2	...	...
Grand Total of Receipts and Disbursements up to 30th September 1875	1,68,417 5 9	2,17,174 8 9	93,58,307 0 5	6,22,332 3 5

Fort St. George,
10*th November* 1875.

(Signed) R. W. LODWICK,
Accountant-General.

—

No. 473.

Forwarded to the Secretary to Government, Public Works Department, Fort St. George. *Vide* letter from Financial Secretary to the Govt. of India, dated 24th June 1869, No. 1,375.

No. 258. ORDER THEREON, 12th November 1875, No. 3,220.

IRRIGATION, No. 18.

Account.

ORDERED that the foregoing statement be communicated to the Chief Engineer for Irrigation, and the following letter be despatched :—

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 259. From the Secretary to the Government of Fort St. George, Public Works Department, to the Under Secretary of State for India, dated 12th November 1875, No. 3,221.

IRRIGATION, No. 19.

Account.

SIR,—I am directed, by His Excellency the Governor in Council, to forward the accompanying statement, which has been furnished by the Accountant-General, showing the sums received and disbursed on account of the Madras Irrigation and Canal Company for the month of September 1875.

	RS.	A.	P.
Capital	93,58,307	0	5
Revenue	6,22,332	3	5
Total ...	99,80,639	3	10

2. The aggregate amount expended up to 30th September was Rupees 99,80,639-3-10.

No. 260. Read the following Proceedings of the Madras Government in the Military Department, dated 4th November 1875, No. 5,328 :—

ABSTRACT.—Communicating a suggestion of the Deputy Surgeon-General, Mysore Circle, for improving the ventilation of the new barrack in course of construction at Wellington.

No. 261. ORDER THEREON, 12th November 1875, No. 3,222.

MILITARY WORKS, No. 5.

THE District Engineer is instructed to carry out, in the construction of the new barrack at Wellington, the improvements in ventilation suggested by the Deputy Surgeon-General.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 262. Read the following endorsement of the Chief Engineer for Irrigation, dated Camp at Pooganoor, 1st November 1875, No. 1,276 :—

Statement of Outlay on Repairs and Minor New Works, Agricultural, for the Month of August 1875.

Districts.	Repairs.					Minor New Works.				
	Budget Estimate.	Revised Grant.	Allot-ment up to end of Month.	Amount of Esti-mates sanction-ed.	Amount expend-ed.	Budget Grant.	Revised Grant.	Allot-ment up to end of Month.	Amount of Esti-mates sanction-ed.	Amount expend-ed.
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Ganjam ...	40,000	39,000	10,000	42,821	8,250	2,500	2,000	750	2,412	1,260
Vizagapatam ...	17,500	17,500	8,700	8,700	7,123	2,000	1,600	2,000	1,600	923
Godavery ...	1,76,200	1,72,000	1,10,000	2,72,168	1,21,376	17,000	13,600	5,000	7,286	2,825
Kistna ...	1,30,000	1,27,000	1,40,000	2,03,986	1,24,619	10,000	8,000	7,500	750	345
Nellore ...	71,700	71,000	48,000	1,67,048	38,843	8,300	6,640	8,700	19,283	4,611
Bellary ...	51,500	50,000	40,000	76,095	32,328	10,000	8,000	2,500	2,349	718
Cuddapah ...	60,000	58,000	40,000	27,175	19,988	12,000	9,600	3,000	3,000	1,475
Kurnool ..	40,000	39,000	35,000	57,607	23,198	5,000	4,000	4,000	7,062	3,089
Presidency ...	3,000	3,000	2,636	2,895	137	...	...	...	...	...
Chingleput ...	1,10,000	1,10,000	45,000	1,12,680	36,743	15,000	12,000	6,000	8,429	2,875
North Arcot ...	1,35,000	1,32,000	80,000	1,55,073	52,754	15,000	14,000	10,000	36,760	9,397
South Arcot ...	1,20,000	1,17,000	35,000	70,886	23,445	15,000	12,000	5,000	10,586	1,918
Salem ...	60,000	58,000	20,000	34,406	19,610	15,000	12,000	6,000	8,541	4,305
Tanjore ...	1,68,500	1,64,000	70,000	1,89,677	73,476	10,000	8,000	7,500	15,067	6,097
Trichinopoly ...	90,000	88,000	65,000	1,01,987	53,048	8,000	6,400	2,000	7,577	1,702
Coimbatore ...	75,000	73,500	30,000	29,645	25,527	6,000	4,800	4,800	4,751	3,598
Malabar ...	1,100	1,100	1,550	1,510	450	500	400	200	...	...
Madura ...	50,000	48,500	25,300	1,20,408	22,267	8,000	4,400	2,000	7,888	1,507
Tinnevelly ...	1,00,500	98,200	89,900	1,54,775	70,395	15,000	12,000	8,807	12,726	6,639
Total ...	15,00,000	14,66,800	8,96,086	18,29,542	7,53,577	1,74,300	1,39,440	85,757	1,56,067	53,284

CAMP AT POONGANOOR,
1st *November* 1875.

(Signed) JOHN MULLINS, Lieut.-Colonel, R.E.,
Chief Engineer for Irrigation.

SUBMITTED for the information of Government.

In the following districts the progress of Repairs and Minor New Works was not satisfactory :—

Repairs.	Minor New Works.
Ganjam.	Bellary.
Cuddapah.	Cuddapah.
Chingleput.	Chingleput.
South Arcot.	South Arcot.
Salem.	Salem.
Coimbatore.	Trichinopoly.
	Madura.

With reference to G. O., No. 2,325, of the 12th August last, short outlay will be explained in submitting the statement for September.

2. The outlay from the Minor New Works grant in Godavery and Kistna was, it will be seen, very small; but this is due to most works of this class in these districts being chargeable to Revenue, and being, therefore, carried out from the Repair grant. The Minor New Works grant will therefore for the most part be utilized in other districts.

3. It will be seen that the total outlay on Repairs exceeded the average required by about Rupees 1,40,000, while the expenditure on Minor New Works fell short by about Rupees 5,100. There is no doubt but that the grants will be fully worked out, though expenditure will not be distributed as was intended.

(Signed) JOHN MULLINS, Lieut.-Colonel, R.E.,
Chief Engineer for Irrigation.

No. 263. ORDER THEREON, 12th November 1875, No. 3,223.

IRRIGATION, No. 20.
Account.

ORDERED to be recorded.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 264. Read the following despatch from the Most Honorable the Secretary of State for India :—

Public Works, INDIA OFFICE, LONDON
No. 18. *14th October* 1875.

I HAVE received your Public Works letter, dated 13th August 1875, No. 33, forwarding an indent for materials for lightning conductors for the protection of the Wellington Barracks on the Nilgiris, and have sanctioned the supply of the stores required.

I have, &c.,
(Signed) SALISBURY.

His Excellency the Honorable
The Governor in Council, Fort St. George.

No. 265. ORDER THEREON, 12th November 1875, No. 3,224.

MILITARY WORKS, No. 6.

COMMUNICATED to the District Engineer, Presidency.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 266. Read the following letter from W. B. LEGGATT, Esq., A.I.C.E., Officiating District Engineer, Bellary, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Bellary, 3rd November 1875, No. 1,914 :—

I HAVE the honor to forward, for the favorable consideration of Government, a petition from Ramaswamy Naidoo, acting first copyist in this office, praying that he may be exempted from passing the Uncovenanted General Test Examination,

1 Petition.
2 Copies of letters.
1 Service Book.

in order to enable him to draw the full pay of the appointment; and to report as follows.

2. On the 30th of July last, Colonel Foord, R.E., brought to the notice of the Controller of Public Works Accounts that Ramaswamy Naidoo, an unpassed candidate, was first appointed in the District Engineer's Office as Goomastah in October 1861 on a salary of Rupees 14; that he was promoted to the situation of Accountant in the Superintending Engineer's Office in July 1863 on Rupees 25, that that appointment was abolished in August 1865 when the compilation of accounts was ordered to be transferred from the Superintending Engineer's to the Range Office in G.O., No. 1,137, dated 28th April 1865, and that since that period Ramaswamy Naidoo was appointed to act in several capacities as shown in the margin until the present time.

1. Acting Accountant from 1st May 1865 to 10th August 1865, salary Rupees 30.
2. Acting Record-keeper from 11th August 1865 to 30th February 1866, salary Rupees 30.
3. Acting Register Clerk, from 1st March 1866 to 30th April 1866, salary Rupees $\frac{30+40}{2}$
4. Do. do. from 1st May 1866 to 8th May 1866, salary Rupees 40.
5. Acting Record-keeper from 9th May 1866 to 30th November 1872, salary Rs. 30.
6. Acting First Copyist from 1st December 1872 to 18th December 1872, salary Rupees 30.
7. Acting Second Clerk from 19th December 1872 to 11th August 1874, salary Rs. 35.
8. Acting First Copyist from 12th August 1874 to present date.

3. As by Notification published in the *Fort St. George Gazette*, dated 26th April 1861, page 587, unpassed men were eligible to appointments whose salaries did not exceed Rupees 25, and as G.O., No. 3,490, dated 1st November 1866, reducing the limit from Rupees 25 to Rupees 20 was received long after Ramaswamy Naidoo held a permanent appointment, Colonel Foord, R.E., asked the Controller whether there was any objection to Ramaswamy Naidoo's now being permanently appointed in this office, as a special case, as second copyist on Rupees 25 per mensem, and to permitting him to act on Rupees 30 until further arrangements could be made.

In reply to the above, the Controller states "that as Ramaswamy Naidoo was not entertained in the public service until October 1861, he was not at the time he was thrown out of employ, in August 1865, eligible to re-appointment to any post, permanent or temporary, on a salary in excess of Rupees 19½ a-month without the special sanction of Government."

4. On three occasions Colonel Moberly and Major Vertue, R.E., Superintending Engineers of the late 3rd Division, recommended that Ramaswamy Naidoo might be exempted from passing the Uncovenanted General Test Examination, but the Government declined to comply with the request, inasmuch as the position occupied by that individual in the Superintending Engineer's Office required no special qualifications. But as the Controller now declines to pass any salary in excess of Rupees 19½ to Ramaswamy Naidoo without the special sanction of Government, I beg that they will be pleased to take his case into favorable consideration, and either to exempt him from passing the General Test Examination in order to enable the Controller to pass the full salary of the post, *viz.*, Rupees 30, or to sanction Rupees 30 being paid to him as a special case. I may mention that Ramaswamy Naidoo's service in the department extends over a period of fourteen years, and that during that time he has rendered satisfaction in the discharge of the duties entrusted to him.

	RS.	A.	P.
September	10	8	0
October	10	8	0
Total ...	21	0	0

5. I further beg that the Government will also be pleased to authorize the Controller to pass the difference of salary between Rupees 30 and 19½ disallowed by that officer for the month of September and October 1875, *viz.*, Rupees 21.

6. I beg to enclose the papers noted in the margin for the information of Government.

1 Copy of letter to Controller, No. 864, dated 30th July 1875.
1 Copy of letter from Controller.
1 Service Book.

No. 267. ORDER THEREON, 12th November 1875, No. 3,225.

ESTABLISHMENT, No. 21.

IT appears to His Excellency the Governor in Council that M. Ramaswamy Naidoo has a claim to be allowed to hold an appointment not exceeding Rupees 25 a-month, the difference between which and Rupees 19½ may be passed to him for the months during which he has been under stoppages. The case was not clearly laid before Government either by the petitioner or the Superintending Engineer in 1872.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 268. Read the following letter from Major J. N. HUNTER, R.E., District Engineer, Salem, to Major-General G. W. WALKER, R.E., Chief Engineer, Public Works Department, dated Salem, 27th October 1875, No. 97 :—

I HAVE the honor to forward, for the sanction of Government, an estimate of Rupees 900 for constructing an Overseer's Office at Sunkerrydroog, Trichengode Taluq. The estimate has been prepared in accordance with the standard design circulated with your memorandum, No. 262, dated 8th March 1875.

1 Detailed Estimate.
1 Abstract Estimate.
1 Plan.
1 Site Plan.
1 Specification.

2. Government in their Order*, No. 1,573, of the 30th July last, in the Financial Department, granted funds for this work.

* Communicated in G.O., No. 141, dated 19th August 1875, Public Works Department.

No. 269. ORDER THEREON, 12th November 1875, No. 3,226.

CIVIL WORKS, No. 18.

THE estimate is sanctioned, and the construction will be carried out as a Local Fund Work from the funds stated to be available in the Proceedings of the Revenue Board, No. 1,974, of 15th July 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 270. Read the following letter from Lieutenant-Colonel R. F. OAKES, R.E., Superintending Engineer, Tanjore, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Tanjore, 23rd October 1875, No. 2,029 :—

I HAVE the honor to forward, for the sanction of Government, the accompanying plans and estimate, amounting to Rupees 9,250, for constructing an office for the Deputy Collector at Mannargudy. The work is one of those entered in the list of buildings required by the Revenue Department in this district, printed with G.O., No. 2,836, dated 6th October 1874.

Sheet No. 1.—Plan of Deputy Collector's Cutcherry.
" " 2.— Do. of Record Racks.
" " 3.— Do. of Record Rack.
" " 4.— Do. of Dais.
" " 5.— Do. of Verandah Timber.
" " 6.— Do. of Ryots' Shed.
" " 7.— Site Plan.
1 Abstract Estimate of Rupees 9,250.
1 Specification.

2. As there is no standard plan for Deputy Collector's Cutcherry, the sanctioned design for District Munsif's Court has been followed in this case, and the Collector has countersigned the plans and estimate in token of approval.

No. 271. ORDER THEREON, 12th November 1875, No. 3,227.

CIVIL WORKS, No. 19.

IT is observed that this work stands sixth on the list printed with G.O., No. 2,836, dated 6th October 1874. The plan and estimate will be referred to the Revenue Department for disposal, with reference to the order of Government in that Department, No. 1,976, of the 9th September 1875.

2. The design for Deputy Collector's Cutcherries is under revision by the Consulting Architect to Government.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 272. Read the following letter from Major H. M. VIBART, R.E., District Engineer, Bangalore, to Major-General G. W. WALKER, R.E., Chief Engineer, Public Works Department, dated Bangalore, 9th August 1875, No. 77 :—

WITH reference to your G.O., No. 62, dated 9th July 1875, I have the honor to forward herewith, for sanction, the under-mentioned estimates for the buildings proposed to be attached to Lock Hospital at this station :—

	RS.
1 Estimate with specification for constructing Hospital Assistant's quarters with out-houses	1,600
1 Do. out-houses for wards	1,200
1 Do. dead-house do.	720
1 Estimate for constructing gate pillars and repairing the old gate, &c.	110
1 General estimate	3,630

2. The estimates have been approved of both by the Major-General Commanding the Division and His Excellency the Commander-in-Chief.

3. The plans of the buildings have already been submitted through the Military Department.

No. 273. From the same officer, dated Bangalore, 12th October 1875, No. 115.

No. 274. ORDER THEREON, 12th November 1875, No. 3,228.

MILITARY WORKS, No. 7.

THE following are the items constituting the general estimate for the Lock Hospital at Bangalore:—

	RS.
1. Cost of land	4,046
2. Native Ward	4,700
3. Hospital Assistant's quarters	1,600
4. Ward out-houses	1,200
5. Dead-house ...	720
6. Gate and pillars	110
Total ...	12,376

2. The purchase of the land has already been effected, the estimate for the Native Ward was approved in G.O., No. 1,397, dated 19th May 1875, and an allotment from the reserve under Military was made, and estimates for items Nos. 3 to 6 aggregating Rupees 3,630 are now submitted by the District Engineer. These are now sanctioned for immediate execution, and the District Engineer will apply for the balance of funds which he can spend in the current year at the usual time.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 275. Read the following letter from R. SMITH, Esq., Officiating Superintending Engineer, Nellore, to Lieutenant-Colonel J. MULLINS, R.E., Officiating Secretary to Government, Public Works Department, dated Nellore, 10th July 1875, No. 38:—

I HAVE the honor to submit, for sanction, a revised estimate, amounting to Rupees 29,650, for the first-class Taluq Cutcherry at Kanigherry, being Rupees 9,390 in excess of the sum sanctioned for that structure in G.O., No. 2,539, dated 17th October 1873.

2. From the accompanying comparative statement it will be seen that the difference between the original and revised estimates is owing to the modifications introduced in accordance with the revised design approved of by Government* for buildings of this class, to the alterations directed in the orders marginally noted, to the additional door provided at the Collector's request, to facilitate communication

* In G.O., No. 1,366, dated 22nd May 1874.
No. 795, of 23rd March 1874.
" 1,288, of 13th May "
" 3,438, of 11th Dec. "
" 1,014, of 20th April "
" 721, of 15th March 1875.

between the Sheristadar's apartment and the Cashier's room, and to the cost of working in that unpopular and sickly part of the district having been under-rated by me. I have also to explain that much more difficulty was experienced than anticipated in collecting and keeping up a supply of skilled labor, and that the available local labor proved to be of the most unsatisfactory kind.

3. The Range Officer had many obstacles to surmount, and under the peculiar circumstances I am satisfied that, with the exception of the rate for brick-work, the charges are not excessive. This masonry should not have cost more than $3\frac{1}{2}$ Annas per cubic foot, the working rate was 3 Annas 10 Pies per cubic foot. The Range Officer's explanation regarding this high rate is given in Appendix A.

4. From the subjoined abstract it will be observed that the modifications and additions referred to in paragraph 2 of this letter account for Rupees 3,971 of the difference between the original estimate and the one now submitted for sanction.

	RS.
Verandahs	1,690
Three iron gratings for doors of Treasury	135
Iron railing between Treasury and Cashier's room	550
Two doors	108
Two ventilators	100
Cut-stone steps	310
Dentil cornice	23
Alterations in masonry	203
One finial	25
Two windows	72
Ryots' shed	355
Cook-house	150
Branch roads	250
Total...	3,971

5. From the accompanying comparative statement it will be gathered that a portion of the excess not accounted for in the above abstract is due to provision having been made in the revised estimate for more substantial work than was originally contemplated, and to the cost of the necessary special superintendence having been charged to the Cutcherry estimate.

6. The preparation in the Range Office of the revised estimate for this Cutcherry occupied far too long, in fact a most unreasonable time, and I have to express my regret for having permitted an expenditure on it of Rupees 3,206 in excess of the *grant* for the year 1874-75. I did so to prevent the breaking up of the working party, and in the hope of receiving the papers necessary to enable me to revise the estimate before the close of that official year, but in this I was sorely disappointed. The state of the Range Officer's health had, no doubt, a deal to do with the delay, and unfortunately I could not spare a man to assist him. Under these circumstances, I trust the irregularity referred to will be excused, and that Govern-

ment will be pleased to sanction a transfer of funds from the unexpended balances of the following buildings to adjust the expenditure of the past year :—

From	RS.	*To*	RS.
Constructing 2nd-class Taluq Cutcherry at Vencatagherry. Item No. 23 of Provincial Budget of 1874-75; and G.O., No. 3,041, of 26th October 1874	2,600	Constructing 1st-class Taluq Cutcherry at Kanigherry. Item No. 22 of Provincial Budget of 1874-75	2,600
Improving Taluq Cutcherry and constructing Subsidiary Jail at Guduru. G.O., No. 1,943, of 20th July 1874	606	Do. do. do. ...	606
Total ...	3,206	Total ...	3,206

7. Annexed are the details regarding the past and proposed expenditure—

	RS.
Amount of the original estimate sanctioned in G.O., No. 2,539, of 17th October 1873	20,260
Amount expended up to the end of last year	20,918
Allotment of the current year	...
Expenditure of the current year up to date	...
Sum required for expenditure in 1875-76	8,000

8. The return of the enclosures is solicited.

No. 276. ORDER THEREON, 12th November 1875, No. 3,229.

CIVIL WORKS, No. 20.

THE revised estimate for the Taluq Cutcherry at Kanigherry in the Nellore District amounts to Rs. 29,650, and exceeds by Rupees 9,390 the original estimate sanctioned in G.O., No. 2,539, dated the 17th October 1873.

2. The gross excesses on the various items may be classified as follows :—

	RS.
Those due to alterations or additions to the cutcherry and out-buildings sanctioned by Government subsequently to the commencement of the work	4,039
Rates too low or quantities of work insufficiently provided for in the original estimate	2,605
Omissions in the original estimate	3,594
Total ...	10,238

There were savings, however, which reduce the net excess to that stated above.

3. The chief causes of excess were the large charge for special superintendence and the very high rate paid for brick-work, a rate which the District Engineer admits was excessive. It must be regarded as unsatisfactory that the supervision which cost so much did not result in better and more economical management.

The excessive delay which has occurred in the submission of the revised estimate for this work is also to be reprehended. The Government have had to notice on several former occasions lapses of this nature in the Nellore district, and these as well as the

frequency with which estimates for Civil Buildings are exceeded indicate that Mr. Smith must maintain a stricter and more continuous control over his subordinates.

4. The revised estimate is sanctioned, but no funds are available for allotment at present.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 277. Read the following letter from Colonel W. A. CROMMELIN, R.E., Deputy Secretary to the Government of India, Public Works Department (Military Works), to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department, dated Simla, 26th October 1875, No. 1,834 M. W. :—

I AM directed to forward copy of a letter, No. 1,188, dated 9th August 1875, from Lieutenant-Colonel H. P. Hawkes, Deputy Commissary-General, on the subject of designs for bakeries, and to inquire whether, in the opinion of the Government of Madras, the plan recommended by that officer is considered a satisfactory one, and superior to the Bengal standard plan issued with Public Works Department Circular, No. 117, dated 19th December 1867.

From Lieutenant-Colonel H. P. HAWKES, Deputy Assistant Commissary-General, Secunderabad, to Lieutenant-Colonel G. BARDIN, Executive Commissariat Officer, Kamthi, dated Secunderabad, 9th August 1875, No. 1,188.

I HAVE the honor to acknowledge the receipt of your letter, No. 122, of the 4th August 1875, asking for information as to the suitability of the so-called standard plan for bakeries.

2. My opinion of this plan has been unhesitatingly given in my report to Government published with their order, No. 1,914, of the 5th June 1873. The experience of two additional years' working has fully confirmed the adverse opinion therein expressed, and I cannot too emphatically condemn a plan which has entailed upon this station the most unsuitable building it is possible to conceive.

3. The mere perusal of the old correspondence on this subject has shown me that Major Taylor's only qualification for the self-imposed task of a designer of bakeries was a little superficial mechanical knowledge, but on the special subject upon which he undertook to guide others, his own plans show him to have been utterly ignorant.

4. I speak strongly on this subject, because the blind adherence to what has been called his "standard plan" has entailed much loss on the State, and has laid upon us at this station the duty of preparing an important article of the soldiers' ration in a building totally unsuited for the purpose.

5. In confirmation of the above remarks, I beg to refer you to an Article in the Calcutta Review for June 1872, from which you will see the estimation in which Major Taylor's plans are held in his own Presidency. The review is not an official publication, and may have slightly heightened the effect, but I have reason to believe that the account there given is substantially true.

It says, "The Commissary-General (Bengal) in an evil hour lent ear to the flattering tale of a certain would be Archimedes in the department. To describe the fantastic crudities and horrible inventions of this rash aspirant for mechanic fame, might doubtless be amusing, but would be hardly edifying; suffice it to say that after wasting large sums of money, this visionary left nothing but 'wreck behind,' to wit amorphous fragments of wood and iron circumjacent in every large station, sad evidences of his folly and presumption."

6. The plan proposed by me in my report to Government is for a bakery turning out 3,000 loaves daily. Your issue is probably not much more than half this, and the dimensions would

consequently have to be reduced. Mr. Glass will doubtless be able to effect this without difficulty, but if a rough sketch from me would be of any assistance to him, I should be glad to furnish it on your supplying me with the following data :—

Number of loaves baked daily, whether you are to have an English mill and engine, or whether you grind by hand. Whether you will store the wheat in the bakery or elsewhere.

7. A good substantial building, such as I recommend, will, of course, cost a good sum, but it is the most false economy to run up an unsuitable erection as that proposed by Major Taylor. It involves a permanent expense for additional establishments ; it is wasteful in material and labor, and takes away from the bakery the useful stimulus of a desire to do credit to an efficient factory.

8. With regard to the revised plan of ovens suggested in Public Works circular, I regret that I cannot recommend them ; they are of the kind called "furnace" ovens, as shown in my report to Government, there is no economy in fuel, and they are frequently failures. The only bakery in which I know them to be working is that at Poona, and from what I saw there on personal inspection a few months ago, I do not think they are any improvement on the ordinary ovens, they require more experienced men to work them, and, unless the "furnace" is very accurately designed, they are certain to fail. They are much more expensive than the ordinary oven, and require a lot of heavy iron work, and I much doubt whether any but a professional (European) oven builder could erect them with any chance of success. I therefore strongly recommend an adherence to the ordinary oven lined with fire-brick and with a layer of coarse salt well packed under the oven bed.

No. 278. ORDER THEREON, 12th November 1875, No. 3,230.

MILITARY WORKS, No. 8.

HIS EXCELLENCY the Governor in Council is of opinion that Lieutenant-Colonel Hawkes' practical acquaintance with the subject of bakeries is such as to render his judgment in the matter of their design, if not decisive, at least necessarily to be followed by considerable alterations of the standard plan of 1867. What these should be will be reported by the District Engineers of the Presidency and Bangalore in correspondence with each other and in personal communication with the Commissariat Officers at those stations.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 279. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 27th October 1875, No. 580 :—

WITH reference to the Order of Government, dated 1st October 1875, No. 2,828, I have the honor to explain that it has of late been the practice to retain in this office all reports of accidents which are not of a serious nature until as full particulars as possible regarding them have been obtained from the Railway Authorities. This procedure appears to have been introduced with a view to meet the wishes of the Government as expressed in the following orders :—

No. 513, dated 23rd February 1872.
,, 2,700, ,, 11th November 1870.

2. All reports of derailments, for instance, are retained until their cause has been as far as possible ascertained, and the punishment awarded to servants of the Company responsible for the same has been recorded. In the same manner an accident to a servant of the Company is not reported to Government until it has been ascertained whether he has recovered sufficiently to return to duty. In all fatal accidents the inquest verdict is required, and this takes time to obtain from the Police.

3. In the present case the report of the obstruction being placed on the line was received in this office on the 28th July last. The Agent having stated that the case had been reported to the Police, no further action was taken until the 1st September,

when it was considered that a sufficient time had elapsed for a full investigation. The Agent was accordingly addressed, and his reply (embodied in my endorsement) was received upon the 23rd September, on which date the report was laid before Government.

4. A fuller and very suggestive illustration is afforded by the accident referred to by Government in their Order No. 2,864, dated 6th October 1875. A complete abstract of the correspondence in this instance will show the action taken by this office during the period which the brevity of the endorsement led the Government to believe had been spent in inaction in the matter. The accident was first reported on 17th March 1875, and fuller particulars followed on the 22nd March 1875. The Consulting Engineer called for further particulars, 27th April 1875, a period of about one month having, as is usual, been allowed to elapse. On the 3rd of May the Chief Engineer replied that nothing further had been heard, that the matter was in the hands of the Police, and that the Superintendent had promised that every exertion should be used to discover the offending parties. On the 14th June the Consulting Engineer again made inquiries on the subject, and on the 21st June a reply to a similar effect to the last was received. On the 2nd August a further reference on the subject was sent, and on the 9th August the Chief Engineer replied, through the Agent, that inquiries were still being made. On the 1st September the Consulting Engineer begged to know if there was any likelihood of the prepetrators of the outrage being discovered, and on the 21st September the reply was received the substance of which was given in an endorsement submitted to Government the following day.

5. It is submitted that the above correspondence, in one out of many such instances, shows clearly the need of some definite instructions on the part of Government based on a full consideration of the end aimed at in these reports. This will seem the more necessary if it be remembered that every such reference necessitates and secures a personal inquiry and report on the part of some member of the engineering staff, as to circumstances at a distance from his head-quarters, and in communication with Government Officers and Departments in no way connected with the Railway, necessitating correspondence on what cannot but seem comparatively unimportant particulars, although perhaps not so.

6. It is clearly necessary that this office should, in the first instance, be apprised of an accident, however trivial, immediately on its occurrence to facilitate investigation by the Government officers, and to enable them to challenge any failure of system which may seem indicated in the report. That, as a rule, further particulars should be furnished to this office directly available seems equally advisable, but it is thought the object sought by Government would be fully attained were unimportant accidents scheduled, as is now the case with cattle trespasses, and thus reported to Government quarterly. A similar schedule might then be forwarded by the Railway Company to this office, the columns of the schedule being extended so as to embrace the fullest particulars, such as "the date of return to duty of injured servants," "the result of action on the part of the Police," "the opinion of the administrative officers of the Railway Company." The present frequent references would, it is thought, be thus obviated, and the Government would still retain the power of reviewing the proceedings as effectively as under the present system of special reports, which cannot in any case reach the Government in complete detail earlier than they do now.

7. The periodicity of such an accident schedule would, it is thought, bring the subject formally and regularly before each divisional officer, and afford time for the collection of the details which, though essential in order that a complete record may be submitted for the review of Government, are, as a rule, always unimportant in their bearing on the accident itself; were it otherwise they would surely find a place in the original report.

8. As Government are aware, all serious accidents are at once reported to them, and no change in this respect is suggested; but reports of minor accidents have always been kept back till their record is complete to permit of their being reviewed and dealt with in one order of Government, and it is for these it is recommended that a schedule should provide.

No. 280. ORDER THEREON, 12th November 1875, No. 3,231.

RAILWAY, No. 37.

HIS Excellency the Governor in Council observes that, provided accidents of a serious nature be reported immediately after their occurrence, there is no objection to others of less importance being brought forward in quarterly schedules. Accidents fully accounted for should be distinguished from those under inquiry, and the latter re-entered in subsequent returns. The schedule submitted to Government should embrace such information as that which it is proposed in paragraph 6 to obtain from the Railway Company.

2. The Consulting Engineer will, of course, be apprised of all accidents immediately on their occurrence.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 281. Read the following letter from Colonel C. H. DICKENS, R.A., Secretary to the Government of India, Public Works Department (Account—Irrigation), to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department (Irrigation Branch), dated Simla, 25th October 1875, No. 356 A. I. :—

I AM directed to acknowledge receipt of your endorsement, No. 2,403, of the 20th August last, forwarding copy of the orders of the Government of Madras authorizing, on the ground of their urgency, the construction of some of the works of the Chembrumbaukum Tank Project, notwithstanding the request of the Government of India, that work should not be undertaken until the revised estimate for the project was sanctioned, and intimating that a grant of Rupees 19,270 will be necessary for the purpose, since, of the grant of Rupees 28,000 provided for the works in the Budget Estimate of 1875-76, Rupees 20,000 have been applied to other purposes.

2. In reply, I am to say that the Government of India are not in a position to confirm the Proceedings of the Government of Madras in this matter until the complete revised estimate for the project is submitted for sanction. It is not known what delays the submission of such an estimate, and I am to ask that explanation of cause of delay may be furnished.

No. 282. ORDER THEREON, 13th November 1875, No. 3,232.

IRRIGATION, No. 21.
Account.

COMMUNICATED to the Superintending Engineer, Chingleput, who will report at once to what cause delay in the submission of a revised estimate is attributable and when it will be submitted.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 283. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 11th November 1875, No. 614 :—

IN accordance with paragraph 11 of Public Works Resolution, No. 830-5A. R., of the 26th June 1872, I have the honor to report that, at the request of the Agent, South Indian Railway, I have authorized the transfers of funds as per accompanying statement in Schedule A of the Budget Estimate of that Railway for 1875-76, as the amounts already provided for some of those items have been exceeded, and it is expected that the allotments for the others will prove insufficient to meet the anticipated expenditure up to the close of the year.

Proceedings, No. 1,754, of 24th July 1872.

SOUTH INDIAN RAILWAY.

AGENT'S DEPARTMENT.

Statement of Transfer in Budget-Estimate for 1875-76.

Particulars.	Cash.	Stores.	Total.
From	RS.	RS.	RS.
III.—CONSTRUCTION OF LINE.			
2 Bridgework—			
2 Large Bridges—			
146 Miles 20 Chains, N.-E. ...	10,000	30,000	40,000
155 „ 69 „ „ ...	10,000	50,000	60,000
212 „ 31 „ „ ...	...	10,000	10,000
214 „ 16 „ „ ...	...	10,000	10,000
IV.—BALLAST AND PERMANENT-WAY.			
1 Ballasting—			
District 11, North-East ...	3,000	...	3,000
„ 13, „ ...	3,252	...	3,252
Permanent-way—			
District 2, North-East ...	10,000	...	10,000
„ 3, „ ...	10,000	...	10,000
„ 5, „ ...	10,000	...	10,000
„ 6, „ ...	6,000	...	6,000
„ 7, „ ...	6,000	...	6,000
„ 9, „ ...	5,000	...	5,000
„ 10, „ ...	10,000	50,000	60,000
„ 11, „ ...	10,000	50,000	60,000
„ 12, „ ...	...	30,000	30,000
„ 13, „ ...	3,000	...	3,000
„ 14, „ ...	3,000	20,000	23,000
„ 15, „ ...	3,000	30,000	33,000
„ 16, „ ...	10,000	50,000	60,000
„ 17, „ ...	10,000	50,000	60,000
„ 8, South-East ...	10,000	...	10,000
V.—STATIONS AND BUILDINGS, NORTH-EAST ...	1,00,000	37,931	1,37,931
Maintenance, North-East	20,000	...	20,000

Particulars.	Cash.	Stores.	Total.
To	RS.	RS.	RS.
III.—CONSTRUCTION OF LINE.			
1 Earthwork—			
District 2, North-East ...	10,000	...	10,000
„ 7, „ ...	10,000	...	10,000
„ 8, „ ...	7,000	...	7,000
„ 9 „ ...	10,000	...	10,000
„ 1, South-East ...	2,500	...	2,500
„ 2, „ ...	1,000	...	1,000
„ 6, „ ...	1,600	...	1,600
2 Bridgework—			
1 Minor Bridges and C.			
District 1, North-East ...	7,000	...	7,000
„ 2, „ ...	7,000	...	7,000
„ 3, „ ...	7,000	...	7,000
„ 4, „ ...	7,000	...	7,000
„ 6, „ ...	10,000	...	10,000
„ 7, „ ...	10,000	...	10,000
„ 8, „ ...	10,000	...	10,000
„ 9, „ ...	10,000	...	10,000
„ 4, South-East ...	...	1,100	1,100
„ 5, „ ...	...	7,900	7,900
„ 6, „ ...	9,500	...	9,500
„ 7, „ ...	...	675	675
„ 8, „ ...	...	5,000	5,000
„ 10, „ ...	...	2,900	2,900
„ 11, „ ...	...	4,000	4,000
„ 12, „ ...	...	8,000	8,000
„ 14, „ ...	...	1,600	1,600
2 Large Bridges—			
2 Miles 46 Chains, N.-E. ...	10,000	...	10,000
63 „ 58 „ „ ...	5,000	2,500	7,500
76 „ 13 „ „ ...	5,000	2,500	7,500
174 „ 65 „ „ ...	1,000	...	1,000
194 „ 71½ „ „ ...	5,000	...	5,000
200 „ 74 „ „ ...	2,500	...	2,500
215 „ 12 „ „ ...	12,500	...	12,500
0 „ 54 „ Dist. 1, S.E	2,100	1,475	3,575
2 „ 41 „ „ 2, „	1,000	...	1,000
14 „ 46 „ „ 3, „	1,000	...	1,000
5 „ 13 „ „ 7, „	...	80,000	80,000
2 „ 46 „ „ 13, „	5,000	9,000	14,000
3 „ 67 „ „ 13, „	4,000	12,700	16,700

Statement of Transfer in Budget Estimate for 1875-76.—(Concluded.)

Particulars.	Cash.	Stores.	Total.	Particulars.	Cash.	Stores.	Total.
From	RS.	RS.	RS.	*To*	RS.	RS.	RS.
				4 Level Crossings—			
				District 1, South-East ...	5,500	...	5,500
				,, 3, ,, ...	2,000	...	2,000
				,, 6, ,, ...	5,000	...	5,000
				,, 7, ,, ...	2,500	...	2,500
				,, 9, ,, ...	2,500	...	2,500
				,, 10, ,, ...	2,500	...	2,500
				,, 12, ,, ...	2,500	...	2,500
				IV.—BALLASTS, PERMANENT-WAY.			
				1 Ballasting—			
				District 5, South-East ...	6,000	...	6,000
				,, 6, ,, ...	6,000	...	6,000
				,, 13, ,, ...	6,000	...	6,000
				2 Permanent-way—			
				District 1, South-East ...	...	4,576	4,576
				,, 2, ,, ...	...	1,000	1,000
				,, 4, ,, ...	...	10,000	10,000
				,, 5, ,, ...	...	2,00,000	2,00,000
				,, 7, ,, ...	...	50,000	50,000
				,, 13, ,, ...	6,500	...	6,500
				,, 14, ,, ...	...	7,400	7,400
				Permanent Telegraphs, North-East	24,000	...	24,000
				Temporary Telegraphs, South-East	2,600	...	2,600
				Equipment of Telegraph Office from Madras to Tanjore ...	4,952	5,605	10,557
Total...	2,52,252	4,17,931	6,70,183	Total ...	2,52,252	4,17,931	6,70,183

The Revised Estimate will stand thus.

III.—CONSTRUCTION OF LINE—	RS.	RS.	RS.
1 Earthwork—			
District 2, North-East	15,492	...	15,492
Do. 7, ,, ...	15,732	...	15,732
Do. 8, ,, ...	10,647	...	10,647
Do. 9, ,, ...	16,455	...	16,455
Do. 1, South-East	2,500	...	2,500
Do. 2, ,, ...	2,000	...	2,000
Do. 6, ,, ...	4,600	...	4,600
2 Bridgework—			
1 Minor Bridges and Culverts—			
District 1, North-East	10,031	...	10,031
Do. 2, ,, ...	15,343	...	15,343
Do. 3, ,, ...	14,642	...	14,642
Do. 4, ,, ...	13,830	...	13,830
Do. 6, ,, ...	20,290	...	20,290
Do. 7, ,, ...	18,858	...	18,858
Do. 8, ,, ...	17,348	...	17,348
Do. 9, ,, ...	13,207	...	13,207
Do. 4, South-East	...	1,100	1,100
Do. 5, ,, ...	...	7,900	7,900
Do. 6, ,, ...	12,000	...	12,000
Do. 7, ,, ...	...	675	675
Do. 8, ,, ...	...	5,000	5,000
Do. 10, ,, ...	...	5,831	5,831
Do. 11, ,, ...	...	4,000	4,000
Do. 12, ,, ...	...	8,000	8,000
Do. 14, ,, ...	...	2,600	2,600

The Revised Estimate will stand thus.—(Concluded.)

	RS.	RS.	RS.
2 Bridgework—			
2 Large Bridges—			
2 Miles 76 Chains, North-East	12,689	...	12,689
63 " 58 " "	5,000	2,500	7,500
76 " 13 " "	5,000	2,500	7,500
146 " 20 " "	16,394	18,671	35,065
155 " 69 " "	18,192	14,101	32,293
174 " 65 " "	1,000	...	1,000
194 " 71½ " "	7,068	...	7,068
200 " 74 " "	5,116	...	5,116
212 " 31 " "	...	6,804	6,804
214 " 16 " "	...	10,159	10,159
215 " 12 " "	12,500	...	12,500
0 " 54 " District 1, South-East ...	2,100	1,475	3,575
2 " 41 " " 2, " ...	1,000	...	1,000
14 " 46 " " 3, " ...	1,000	...	1,000
5 " 13 " " 7, " ...	...	80,000	80,000
2 Miles 46 Chains, District 13, South-East	6,500	9,000	15,500
3 " 67 " " 13, "	6,500	12,700	19,200
4 Level Crossings—			
District 1, South-East	5,500	...	5,500
Do. 3, "	2,000	...	2,000
Do. 6, "	6,000	...	6,000
Do. 7, "	2,500	...	2,500
Do. 9, "	3,250	...	3,250
Do. 10, "	3,250	...	3,250
Do. 12, "	3,250	...	3,250
IV.—Ballast and Permanent-way—			
1 Ballasting—			
District 11, North-East	2,004	...	2,004
Do. 13, "	3,222	...	3,222
Do. 5, South-East	10,000	...	10,000
Do. 6, "	10,000	...	10,000
Do. 13, "	10,000	...	10,000
2 Permanentway—			
District 2, North-East	6,828	...	6,828
Do. 3, "	5,620	...	5,620
Do. 5, "	9,243	...	9,243
Do. 6, "	5,743	...	5,743
Do. 7, "	6,828	...	6,828
Do. 9, "	5,496	...	5,496
Do. 10, "	4,121	46,747	50,868
Do. 11, "	2,944	30,351	33,295
Do. 12, "	...	10,989	10,989
Do. 13, "	4,035	...	4,035
Do 14, "	4,035	16,615	20,650
Do. 15, "	4,036	26,401	30,437
Do. 16, "	2,988	46,432	49,420
Do. 17, "	1,906	30,063	31,969
Do. 1, South-East	...	4,576	4,576
Do. 2, "	...	1,000	1,000
Do. 4, "	...	10,000	10,000
Do. 5, "	...	2,00,000	200,000
Do. 7, "	...	50,000	50,000
Do. 8, "	11,500	...	11,500
Do. 13, "	8,000	...	8,000
Do. 14, "	...	1,07,400	107,400
V.—Stations and Buildings, North-East	35,926	1,13,306	149,232
Maintenance	10,000	...	10,000
Permanent Telegraph Office, North-East	24,000	...	24,000
Temporary " South-East	2,600	...	2,600
Equipment of " "	4,952	5,605	10,557

Trichinopoly,
29*th October* 1875.

(Signed) F. SMITH,
for *Acting Agent.*

Nos. 284 & 285. ORDER THEREON, 13th November 1875, No. 3,233.

RAILWAY, No. 38.

ORDERED to be forwarded for the information of the Government of India.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 286. (DOCKET No. 3,234, dated 13th November 1875.)

COPY of the above forwarded to the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following letters :—

No. 287. From Major J. BEATTY, R.E., Acting Superintending Engineer, Godavery District, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Camp at Covoor, 4th September 1875, No. 1,721.

1 Statement of Harbour Floating Plant.
1 Do. of River Navigation Plant.
1 Data of details showing the amount required for the annual upkeep of the Government Harbour Plant.

As directed in G.O., No. 236, of 2nd February 1874, paragraph 7, I have the honor to submit the annual lists of Harbour Floating Plant and River Navigation Plant.

2. The list of Irrigation Floating Plant has been forwarded to the Chief Engineer for Irrigation.

No. 287-A. From the same Officer, dated Dowlaishweram, 29th October 1875, No. 2,243.

1 Plan.
1 Estimate.

I HAVE the honor to furnish the information called for in G.O., No. 2,443, of 26th August 1875.

2. On receipt of those orders the *Shamrock* was brought up the canal to Dowlaishweram, and she is now lying in the main canal, a little below the head sluices. She will be moved into the river before the canals are closed.

3. This vessel was dismantled before she was sent down from Calcutta, *i.e.*, her paddles and paddle-boxes were removed. It is owing to her being in this dismantled state that it was possible to pass her through the locks. Without her paddle-boxes she measures 92 feet long by 14 feet broad.

4. I send an estimate of the cost of refitting her and for ordinary repairs, such as repainting and recaulking.

5. At present there is work for one more steamer at Dowlaishweram in addition to the *Little Nell* and the *Thistle*; but we expect to have the *Fred* and *May* next season, and when these three steamers are in working order, they will be fully equal to all the public and private work we have.

6. Consequently I recommend that the *Shamrock* be sent elsewhere. Possibly she would be useful in the Kistna, where I understand that there is work for a more powerful steamer than the one they now have. If so, she could be sent over by canal in her present dismantled state, and the refitting and repairs done at Bezwada.

7. The *Fred* and *May* is now ready for her new boiler, but as she must be brought up over the anicut, and that cannot be done until we have a 9 or 10 feet fresh in July next, I propose to keep her in the dry dock at Dowlaishweram until next May, then send her down to Cocanada to receive the boiler, and into the river in readiness to take advantage of the first great fresh in July. She can pass through all the lower locks on the canal as they are 20 feet broad, but she cannot pass the Dowlaishweram lock which is only 15 feet.

8. I send a plan of the *Prince*. She is a powerful river steamer, well fitted for running in the freshes on any of the large rivers of India or Burmah; but, as she draws 3½ feet when loaded, she is unsuited to the work at Dowlaishweram, and the *Godavery*, *Wurda*, and *Wynegunga* are all we require for work on the upper part of the river in the freshes, and better suited to it as they draw less than 2 feet. At the last trial, about two months since, the *Prince* did 5 miles an hour against a current of 3 to 4 miles an hour. The great objection to her for service on the Upper Godavery, in addition to her draught, was her great width across the paddle-boxes 41 feet 6 inches; this prevented her passing through the Upper Godavery locks which are only 30 feet broad.

9. If the engine and boilers of the *Prince* are to be sold separately, their value can only be roughly estimated at Rupees 6,435, *i.e.*, one-third of the valuation at which the steamer now stands in our accounts; but the hull would then fetch only a few thousand rupees as old iron.

10. I would suggest that an attempt be first made to sell her with her engines and fittings complete, and it seems possible that if copies of the plan were sent to Calcutta, Bombay, and Rangoon, and advertisements put in the papers there, a purchaser would be found.

No. 288. ORDER THEREON, 13th November 1875, No. 3,235.

ACCOUNT, No. 6.

ALL the harbour punts and both dredges, as well as the steamer *Frank* and *Ada*, having been taken over by the Marine Department, they will be struck off the District Engineer's List.

2. He will report the expenditure on the *Fred* and *May*, on the sanction of Rupees 7,800, accorded in G.O., No. 646, of 6th March 1875. All further outlay on her account will be charged to Irrigation, and she will be transferred to that list, in conformity with the recommendation of the District Engineer made in letter recorded with G.O., No. 1,982 of 12th July.

3. The District Engineer, Kistna, will report, through the Chief Engineer for Irrigation, whether he is desirous of having the *Shamrock* transferred for work at Bezwada.

4. The drawings and description of the *Prince* will be communicated to the Marine Department, which has been requested in G.O., No. 2,936, of 14th October 1875, to arrange for the disposal of that vessel. The estimate for the annual repairs of the harbour plant will likewise be transferred to that department for disposal.

5. A sum of Rupees 2,200 will be provided in the Provincial Budget of 1876-77 for the maintenance of the Upper Godavery steamers.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following papers :—

No. 289. From Major J. N. HUNTER, R.E., District Engineer, Salem, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Salem, 25th November 1874, No. 163.

1 Site Plan.
1 Abstract Estimate.
1 Specification.

WITH reference to paragraph 5 of G.O., No. 3,025, dated 16th December 1873, I have the honor to forward, for the sanction of Government and for entry in the Budget of 1875-76, an estimate of Rupees 26,600 accompanied by plans and specification for constructing a Taluq Cutcherry at Darampoory.

2. The room for a Post Office was omitted as per G.O., No. 1,709, dated 9th October 1874, in the Financial Department, as there already exists an Imperial Post Office at that station.

No. 290. From Major J. N. HUNTER, R.E., District Engineer, Salem, to Lieut.-Colonel J. MULLINS, R.E., Officiating Secretary to Government, Public Works Department, dated Salem, 14th July 1875, No. 53.

1 Estimate (Abstract).
1 Specification.
1 Copy of Range Officer's letter.
1 Copy of detail data for terrace.

WITH reference to your memorandum, No. 144, dated 5th February last, I have the honor to forward copy of a letter from the Officer in charge of Oossoor Range, furnishing the required explanation on the several points therein referred to in connection with the Darampoory Taluq Cutcherry.

2. Having no plans of the Cutcherry with me, I am unable to include in the estimate the cost of compound wall, well, and tiled drain, noticed in paragraph 24 of the Range Officer's letter.

From W. C. S. WEST, Esq., Officer in charge of No. 2 or Oossoor Range, Salem District, to Major J. N. HUNTER, R.E., District Engineer, Salem, dated Oossoor, 23rd March 1875, No. 2,053.

I HAVE the honor, with reference to your No. 952, dated 12th ultimo, endorsement on No. 144, dated 5th idem, from the Under Secretary to Government, to submit the following explanation.

2. The great differences in the earthwork and masonry foundations are owing to a greater depth of foundations having been allowed for the Darampoory Taluq Cutcherry, so that they may rest on firm soil, the site being made earth of the glacis of the Fort. The present foundations will rest on gravel. I further beg to invite your attention to the correspondence marginally noted, and in the latter part of Colonel Foord's letter he suggests that "the foundations will probably have to be taken through the made-earth of the glacis into the solid ground."

Your endorsement, No. 483, of the 4th October 1873, on the Inspecting Engineer for Civil and Military Buildings, No. 1,226, of 30th September 1873, and my No. 1,013, dated 12th December 1873, remarks on site No. 2.

3. I have estimated for flat and circular archwork separately, as the rates for these works are higher than for brickwork.

4. In flooring 8-inch square bricks a deduction is made for the Post Office-room, which has been struck out, as my figures were for forty-six squares.

5. On the reverse of page 12 of my detailed estimate, the excess in flooring with asphalte is accounted for in detail. I have included the record-room to be asphalted, so as to keep any white-ants which may come up the walls from destroying the records; also, as the floor will be made use of frequently, nothing else would stand the wear and tear better.

6. The discrepancies in plastering and pointing of my estimate are under the standard estimate, and is in consequence of the Post Office-room having been struck out.

7. With regard to the rate for terracing, I enclose a detailed data, and beg to state that I have taken into consideration that firewood (which will be largely used for burning bricks, tiles, &c.,) will have to be carted from 20 to 25 miles, this will also affect the rate for masonry.

8. In the roofing with flat and pantiles, &c., I have included the teakwood rafters and teak reepers in the rate for roofing; the discrepancy is due to the Post Office-room having been struck out.

9. Cut-stone work being in excess of the standard estimate is due to cut-stone steps for turret, stones under trusses and all the outer edges of doors having been provided for under this head, besides the coping of the basement. If the Post Office-room had not been struck out, this item would have been much more.

10. The discrepancy with regard to honey-comb work is trifling and unimportant; it is 85 square, and not 85 squares as written in the statement.

11. The excess under cornice and dentil work is due to a provision having been made to work mouldings, cornice, and dentil work around all archways, and semi-circular at top doorways on both sides, and the exterior and interior of all the rooms as is shown in the standard plan, and on the reverse of page 8 of my detailed estimate the details are given.

12. The excess of wrought iron work over that in the standard estimate is due to iron bars proposed to be placed in the peep-holes, so that an entrance may not be effected, the peep-holes being 1 foot broad.

13. The square feet of doors, although separately divided by me in detail for the purpose of the different rates I had estimated the work to be done, are as under :—

	Standard Estimate. SQ. FEET.	My Estimate. SQ. FEET.
	192	150
	917	276
		645
Total ...	1,109	43
Total...		1,114

which correspond very nearly; but, as the Post Office-room has been struck out, my estimate will yet be in excess, but not very much; this I can explain by having provided for two doors to the turret, so that the record-room may be securely kept shut and not left open for any one to go into at pleasure.

14. The great difference between the teakwood work is due to the trusses having been estimated for separately, and that the whole of the common rafters are included in the rate for roofing.

15. The discrepancies in windows, ventilators, fixed venetians, painting and zinc, and shutting vallies are very trifling, which will hardly cause any difference in the working out of the estimate.

16. The wood-oiling is provided for all rafters, trusses, purlins, and ridge-poles, &c., which does not seem to have been provided for in the standard estimate, although I think it will be admitted that such would be necessary.

17. The trusses, as I said before, are estimated for separately; consequently they are shown in lump sums.

18. Lightning conductors and bands, &c., being a new item which was recently ordered to be attended to, this is an addition of mine which, I think, requires no further explanation.

19. Stones under trusses are included in cut-stone work as stated above.

20. Barge boards and finial for the entrance are entered under the sub-head of teakwood work.

21. I have left out the tiled drain under circumstances as stated below. The Government order, No. 2,906, of 16th November 1871, regarding tiled drains for Taluq Cutcherries was received by Mr. Paynter on the 15th December 1871; I did not therefore know of this or noticed it till lately, and was not aware that it should have been provided for.

22. Spiral stairs of cut-stone is included separately under cut-stone work.

23. The other items of excess in ryots' shed, jail cook-room, jail latrine and public latrine are due to high rates which will have to be paid for bricks, tiles, and country wood, as firewood and country wood will have to be carted from a distance of from 20 to 25 miles.

24. I have not included the compound wall, gate, and well, nor the tiled drain for this, as well as the Kristnagherry Taluq Cutcherry, and is an oversight of mine, for which I beg to be excused through pressure of office work. And, as I have not the plans by me, I beg these works may be entered in the plans and estimates in your office, if you think that they are necessary at the following rates:—

Compound wall of brick in chunam and plastered with two coats of chunam according to the standard design with gate and turnstyle, 4 Rupees a running foot. The lengths will be according to the plan to be drawn in the site plan.

Tiled drain with 4 inches concrete and 9 inches tiles laid in mortar and finely pointed, as per standard plan, 5 Annas a running foot. The measurement for this also I am unable to give, as I have not the plans by me; these measurements can be had from the plan for the main building.

25. In conclusion, I beg to state that I had very carefully gone through the whole of the details of the estimate myself before it was submitted, and I have again very carefully compared the statement, together with the Under Secretary's remarks, with my detailed estimate, and cannot find that anything has been entered in excess or less than that which will be required to complete the work, excepting what I have stated to have been left out by mistake. Moreover, I have no standard revised estimate showing the quantities in the second column of Major deScott's statement. I do not think the Government order circulating this revised standard estimate was circulated to me; the only Government orders I have on the subject are as under:—

No. 2,791, dated 1st September 1868, estimate for Taluq Cutcherries.

No. 1,366, of 22nd May 1874, estimate for Taluq Cutcherries.

The abstracts in these do not agree with the above revised standard estimate, excepting five or six items in the latter, and I think this is not the estimate referred to.

1 Detailed Estimate.
1 Abstract do.
1 Specification Report.
1 Comparative Statement.
1 Building data.
1 Do. from the Oossoor Range.

26. I beg to return the enclosures which accompanied the above-mentioned memorandum under reply.

No. 291. From the District Engineer, Salem, dated 13th October 1875, No. 90.

No. 292. ORDER THEREON, 13th November 1875, No. 3,236.

CIVIL WORKS, No. 20-A.

THE estimate for a Taluq Cutcherry at Dharampoory, as submitted by the District Engineer, amounts to Rs. 26,600, but additional provision for a gate, boundary hedge, and tiled drain which are necessary raises it to Rupees 27,050.

2. The rates for some of the items are high, but they are accounted for by the Range Officer, and the exceptional depth to which it is shown to be necessary to sink the foundations is a further cause of expense.

3. The estimate as revised is sanctioned, and the work will be included in the Budget for 1876-77.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following papers :—

No. 293. Proceedings of the Madras Government in the Military Department, dated 30th September 1875, No. 4,727.

ABSTRACT.—Approving estimates for constructing a latrine for the Sapper Quarter-Guard at Bangalore, and for providing gates to the gun-sheds of Royal Horse Artillery and Field Batteries of Royal Artillery at the same station.

No. 293-A. From Major H. M. VIBART, R.E., District Engineer, Bangalore, to Major-General G. W. WALKER, R.E., Chief Engineer, Public Works Department, dated Bangalore, 8th November 1875, No. 126.

WITH reference to your memorandum, No. 592, dated 27th ultimo, I have the honor to state that the Officer Commanding Royal Artillery, Mysore Division, states that it will not do to block up any of the gateways. Plans of the gun-sheds are herewith forwarded.

No. 294. ORDER THEREON, 13th November 1875, No. 3,237.

MILITARY WORKS, No. 9-A.

THE estimates are sanctioned, and the works will be carried out when funds are available.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 295. Read the following endorsement of the Consulting Engineer for Railways, dated Madras, 11th November 1875, No. 613 :—

SOUTH INDIAN RAILWAY.

Comparative Statement of Sanctions and Expenditure on Establishments and on Revenue Account for the Half-year ended 30th June 1875.

General Summary.

Department.	Sanction.	Expenditure.	Expenditure compared with Sanction.		Remarks.
			More.	Less.	
	RS.	RS.	RS.	RS.	
Maintenance of Way, Works, and Stations	75,285	38,603	...	36,682	
Locomotive Department ...	2,06,824	1,50,589	...	56,235	Notes explanatory of the principal differences are given on the detail statements.
Traffic Expenses	53,142	46,308	...	6,834	
General Charges	69,300	61,742	...	7,558	
Special and Miscellaneous Expenditure	2,250	1,419	...	831	
Engineering Department ...	2,88,126	2,17,946	...	70,180	
Total ...	6,94,927	5,16,607	...	1,78,320	
MAINTENANCE OF WAY, WORKS, AND STATIONS.					
Superintendence.					
Resident Engineer... ...	4,909	4,909	...	...	
Inspectors	3,840	3,640	...	200	
Clerk	900	750	...	150	
Draughtsman	210	210	...	...	
Peons	324	324	...	...	
Inspectors' Writers ...	480	436	...	44	
Do. Lascars ...	324	319	...	5	
Office Rent	120	120	...	...	
Travelling Allowances ...	630	555	...	75	
Stationery and Office Stores ...	120	} 109	...	71	
Contingencies	60				
Total ...	11,917	11,372	...	545	
Maintenance, &c.					
Maintenance and Renewals of Permanent-way.	55,597	21,968	...	33,629	Estimated renewals of permanent-way with iron pots, sleepers, &c., not carried out owing to conversion of gauge.
Repairs of Bridges, &c. ...	3,266	1,540	...	1,726	
Repairs of Stations and Buildings.	3,949	3,189	...	760	
Unclassified Expenditure.					
Tools and Plant	556	366	...	190	
Loss on Stores	...	87	87	...	Sanctioned in audit statement for April.
Baling water from Saw-pits ...	...	81	81	...	Met from provision for labor on works, &c.
Total ...	63,368	27,231	...	36,137	
Summary.					
Superintendence	11,917	11,372	...	545	
Maintenance, &c.	63,368	27,231	...	36,137	
Total ...	75,285	* 38,603	...	36,682	* Total expenditure as per this statement ... ... RS. 38,603 Add superintendence included under Arconum Branch sanction ... ... 450 Expenditure as per revenue account 39,053

Comparative Statement of Sanctions and Expenditure on Establishments, &c.—(Continued.)

Department.	Sanction.	Expenditure.	Expenditure compared with Sanction.		Remarks.
			More.	Less.	
Locomotive Carriage and Wagon Expenses.	RS.	RS.	RS.	RS.	
Locomotive Superintendent ...	4,909	4,909	...	...	
Assistant do. ...	2,550	2,550	...	...	
Clerks	4,495	3,913	...	582	
Draughtsman	300	234	...	76	
Foremen	12,600	6,786	...	5,814	Sanctioned maximum rate of salary not drawn in some cases; and Foremen at Madura, and Tuticorin not appointed during the half-year.
Native Foremen	1,158	1,038	...	120	
Fitters	4,000	4,381	381	...	Labor in shop, erection of narrow gauge engines.
Drivers	10,180	9,256	...	924	
Firemen	7,680	6,384	...	1,296	
Native Firemen	5,458	2,732	...	2,726	
Cleaners	1,622	589	...	1,033	Estimate in excess of requirements.
Coal Coolies	810	556	...	254	Estimate in excess of requirements.
Native Subordinates ...	1,200	1,202	2	...	
Rolling Stock Inspector ...	720	460	...	260	Sanctioned rate of salary not paid in some cases.
Watermen	972	914	...	58	
Peons	540	512	...	28	
Carpenters and Painters ...	13,250	14,644	1,394	...	Labor in shops, manufactures and extra labor for erection of narrow gauge vehicles.
Mechanics and Smiths ...	8,300	9,413	1,113	...	Labor in shops, manufactures and extra labor for erection of narrow gauge vehicles.
Other labor	6,000	4,743	...	1,257	Labor in shops, manufactures and extra labor for erection of narrow gauge vehicles.
Overtime and Batta ...	4,200	4,232	32	...	
Driving Allowance ...	...	1,655	1,655	...	See salaries of Drivers and Firemen.
Travelling Allowances ...	800	295	...	505	
Contingencies	3,000	220	...	2,780	Payments to Madras Railway for water at Erode, Rupees 216. The charges under this head vary considerably, but the estimate would seem high.
Stationery and Office Stores ...	800	569	...	231	
Total ...	95,544	82,177	...	13,367	
Working Stores.					
Coal	65,000	41,965	...	23,035	Quantity consumed 350 tons less than in previous half-year, owing to larger proportion of wood fuel used and reduction in issuing price of about Rupees 6 per ton.
Wood	10,250	13,064	2,814	...	See above.
Miscellaneous	4,000	4,304	304	...	
Engine Repairs	15,030	3,708	...	11,322	Estimate based upon previous six months. During the latter part of the half-year, the shops were occupied with the erection of narrow gauge vehicles.
Coaching Vehicles Repairs ...	5,750	1,475	...	4,275	Estimate based upon previous six months. During the latter part of the half-year, the shops were occupied with the erection of narrow gauge vehicles.
Goods do. ...	11,250	3,896	...	7,354	Estimate based upon previous six months. During the latter part of the half-year, the shops were occupied with the erection of narrow gauge vehicles.
Total ...	1,11,280	68,412	...	42,868	
Summary.					
Wages, &c.	95,544	82,177	...	13,367	
Stores.	1,11,280	68,412	...	42,868	
Total ...	2,06,824	* 1,50,589	...	56,235	

	RS.
* Expenditure in this statement	1,50,589
Deduct capital, superintendence, workshop labor, &c.	32,417
	1,18,172
Add superintendence included under Arconum Branch	450
Locomotive, Carriage and Wagon expenses ...	1,18,622

Comparative Statement of Sanctions and Expenditure on Establishments, &c.—(Continued.)

Department.	Sanction.	Expenditure.	Expenditure compared with Sanction.		Remarks.
			More.	Less.	
	RS.	RS.	RS.	RS.	
Traffic Expenses.					
Traffic Manager ...	3,816	3,818	2	...	
Clerks ...	1,080	926	...	154	
Peons ...	72	72	...	...	
Travelling Inspector ...	300	300	...	...	
Guards ...	4,230	3,662	...	568	
Station Clerks ...	8,130	7,293	...	837	
Porters ...	7,641	7,589	...	55	
Gatekeepers ...	1,650	1,579	...	71	
Travelling Allowances ...	720	685	...	35	
Contingencies ...	10	29	19	...	
Stationery and Office Stores ..	2,800	2,343	...	457	Expenditure as per this statement ... RS. 46,308
Working Stores ...	2,640	2,121	...	519	Add superintendence included against Arconum Branch sanction ... 450
Mileage of Foreign Stock ...	12,000	7,759	...	4,241	Uncertain item. Estimate high in comparison with previous charges.
					Expenditure as per revenue account 46,758
Expenses at Joint Stations ...	7,000	7,025	25	...	
Clothing ...	750	874	124	...	
Miscellaneous Expenses ...	300	233	...	67	
Total ...	53,142	46,308	...	6,834	
General Charges.					
Home Expenditure.					
Revenue proportion ...	6,000	5,068	...	932	The charge is variable, being a per-centage on the cash expenditure.
Agency.					
Agent ...	10,908	10,909	1	...	
Consulting Physician ...	900	900	...	...	
Apothecaries ...	1,320	1,270	...	50	
Clerks ...	3,900	3,780	...	120	
Peons ...	600	565	...	35	
Police Account ...	108	103	...	5	
Stores.					
General Superintendent ...	1,800	1,800	...	...	
Storekeeper, Madras ...	1,800	2,441	* 641	...	* Balance of furlough pay.
Clerks ...	3,000	3,000	...	...	
Peons ...	800	834	34	...	Met from saving in Audit Department. C. E's. 136 of 4th March 1875.
Travelling Allowances ...	700	192	...	508	
Contingencies, Stationery, and Office Stores ...	3,000	2,427	...	573	
Total ...	34,836	33,289	...	1,547	
Audit.					
Chief Auditor ...	3,818	3,818	...	...	
Bookkeeper, Chief Clerk ...	1,200	1,050	...	150	
Clerks ...	15,450	12,597	...	2,853	Number of clerks and salaries paid in some cases less than estimate.
Peons and Punkahmen ...	702	631	...	71	
Travelling Allowances ...	250	54	...	196	
Contingencies ...	600	102	...	498	
Total ...	22,020	18,252	...	3,768	

Comparative Statement of Sanctions and Expenditure on Establishments, &c.—(Continued.)

Department.	Sanction.	Expenditure.	Expenditure compared with Sanction. More.	Expenditure compared with Sanction. Less.	Remarks.
Arconum Branch.	RS.	RS.	RS.	RS.	
Superintendent	1,800	1,800	...	...	
Clerks	300	300	...	...	Charges to Revenue under Maintenance, Locomotive and Traffic Expenses ... RS. 1,350
Peons	72	71	...	1	Do. do. to Capital ... 821
Travelling	20	...	...	20	
Total ...	2,192	2,171	...	21	2,171
Rents of Buildings and Land ...	50	...	...	50	No payments on this account during the half-year.
Medicines	50	57	7	...	
Advertising	150	87	...	63	
Unclassified Expenditure ...	500	...	...	500	Expenditure under this head seldom occurs.
Total ...	750	144	...	606	
Telegraph.					
Inspector	330	330	...	...	
Signallers	6,690	5,274	...	1,416	Signallers for northern extension not employed during the whole of the period.
Peons	882	794	...	88	
Travelling Expenses ...	100	} 1,354	54	...	
Office Expenses and Contingencies.	1,200				
Maintenance	300	134	...	166	
Total ...	9,502	7,886	...	1,616	
Summary of General Charges.					
Revenue Home Expenditure ...	} 34,836	33,289	...	1,547	Revenue general charges per revenue accounts ... RS. 26,894
Agency and Stores ...					Do. superintendence, Arconum Branch.
Audit	22,020	18,252	...	3,768	Maintenance ... 450
Arconum Branch	2,192	2,171	...	21	Locomotive ... 450
Rents of Land, &c. ...	750	144	...	606	Traffic 450
Telegraph	9,502	7,886	...	1,616	1,350
Total ...	69,300	61,742	...	7,558	Total revenue ... 28,244 Capital per Form V.— Direction, Stores, Audit and Accounts and Telegraph ... 60,604 Deduct— Home charges... 21,353 Medical included in Engineering ... ... 6,527 Salaries for Dec. 1874, booked in Jan. 1875 ... 5,342 33,222 27,382 Add salaries for June not booked till July ... 6,035 Do. refunds ... 81 6,116 33,498 61,742
Special and Miscellaneous Expenditure.					
Law Charges	300	16	...	284	
Compensation	150	60	...	90	
Rates and Taxes	1,800	1,343	...	457	
Total ...	2,250	1,419	...	831	
Engineering Establishment.					
Engineers.					
Chief Engineer	10,800	10,800	...	...	Authorized number of each class estimated for, but a larger proportion were of the lowest grade.
Assistant Engineers, 1st-class...	34,398	23,886	...	10,512	
Do., 2nd ,, ...	34,398	12,092	...	22,306	
Do., 3rd ,, ...	24,570	42,222	17,652	...	

Comparative Statement of Sanctions and Expenditure on Establishments, &c.—(Concluded.)

Department.	Sanction.	Expenditure.	Expenditure compared with Sanction.		Remarks.
			More.	Less.	
Establishment.	RS.	RS.	RS.	RS.	
Manager	1,800	1,350	...	450	} Salaries paid were less than the sanctioned rate.
Native Assistant to C. E. ...	900	600	...	300	
Clerks	19,410	16,719	...	2,691	Estimate in excess of requirements.
Apothecary	360	360	...	...	
Foremen	3,540	2,040	...	1,500	Do. do.
Peons	1,824	1,310	...	514	
Office Rent	780	780	...	...	
District Establishments.					
Sub-Assistants and Assistants...	23,070	17,115	...	5,955	} Some of the districts on the northern extension were not in full operation during the whole of the period.
Inspectors	49,350	27,502	...	21,848	
Clerks	24,000	12,596	...	11,404	
Apothecaries	7,500	5,614	...	1,886	
Peons, &c.	10,416	8,345	...	2,071	Requirements overestimated.
Travelling Allowances ...	28,980	23,416	...	5,564	Charged to Capital per detail of Capital expenditure ... RS. 2,08,060 Deduct— December's salaries booked in January ... ... 31,172 1,76,888 Add— June's salaries booked in July ... 34,322 Apothecaries, &c., debited to medical and sanitation. 6,527 Refunds ... 211 41,060
Stationery and Office Stores ...	6,990	6,873	...	117	
Contingencies	5,040	4,328	...	712	
Total ...	2,88,126	2,17,948	...	70,178	Total ... 2,17,948

MADRAS,
4th November 1875.

(Signed) R. G. MACDONALD,
Examiner of Railway Accounts.

NEGAPATAM,
25th October 1875.

(Signed) R. K. WILLIAMS,
Assistant Examiner.

SUBMITTED to Government with reference to their Order, No. 1,999, of the 22nd August 1872.

2. The general summary shows a net saving of Rupees 1,78,320, or 25·66 per cent. on the amount authorized, which is chiefly due to the actual outlay having fallen short of the anticipations on the maintenance of the permanent-way, repairs to rolling stock, quantity and price of coal, and on district establishments on the northern extension.

3. The larger variations between estimate and expenditure are accounted for in the column of remarks.

(Signed) J. H. M. SHAW-STEWART, Lt.-Col., R.E.,
Consulting Engineer for Railways.

Nos. 296 & 297. ORDER THEREON, 13th November 1875, No. 3,238.

RAILWAY, No. 39.

ORDERED to be forwarded to the Government of India.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 298. (DOCKET No. 3,239, dated 13th November 1875.)

COPY of the above forwarded to the Government of India with reference to their letter, No. 823 G.R., dated 17th June 1872.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 299. Read the following letter from T. D. HARRIS, Esq., Officiating District Engineer, Malabar, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Calicut, 28th September 1875, No. 98 :—

WITH reference to G.O., No. 296, dated 31st May last, I have the honor to forward a plan and estimate* for constructing two dry-earth sheds in connection with the latrines of the Royal Artillery Barracks at Cannanore duly approved of by the Officer Commanding the Provinces.

* Rupees 420.

No. 300. ORDER THEREON, 13th November 1875, No. 3,240.

MILITARY WORKS, No. 10.

THE estimate is sanctioned and will be carried out emergently on sanitary grounds.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 301. Read the following letter from T. D. HARRIS, Esq., Officiating District Engineer, Malabar, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Calicut, 27th October 1875, No. 110 :—

WITH reference to G.O., No. 2,863, dated 6th instant, requiring explanation upon the excess expenditure in paving the wells at Cannanore, I have the honor to forward copies of correspondence which my predecessor forwarded to the Controller of Public Works Accounts when submitting the completion certificate for the work.

Letter from the District Engineer, Malabar, to the Controller of Public Works Accounts, No. 54, dated 10th February 1875.
Letter from the Assistant Engineer, Cannanore Range, No. 397, dated 22nd January 1875, to the District Engineer, Malabar.
Letter from Overseer in charge of the Cantonment, to the Assistant Engineer in charge, Cannanore Range, No. 62, dated 23rd December 1874.

2. From these papers it will be observed that the chief causes for excess are for works not included in the original

Comparative Statement of Sanctions and Expenditure on Establishments, &c.—(Concluded.)

Department.	Sanction.	Expenditure.	Expenditure compared with Sanction.		Remarks.
			More.	Less.	
	RS.	RS.	RS.	RS.	
Establishment.					
Manager	1,800	1,350	...	450	Salaries paid were less than the sanctioned rate.
Native Assistant to C. E. ...	900	600	...	300	
Clerks	19,410	16,719	...	2,691	Estimate in excess of requirements.
Apothecary	360	360	...	...	
Foremen	3,540	2,040	...	1,500	Do. do.
Peons	1,824	1,310	...	514	
Office Rent	780	780	...	...	
District Establishments.					
Sub-Assistants and Assistants...	23,070	17,115	...	5,955	Some of the districts on the northern extension were not in full operation during the whole of the period.
Inspectors	49,350	27,502	...	21,848	
Clerks	24,000	12,596	...	11,404	
Apothecaries	7,500	5,614	...	1,886	
Peons, &c.	10,416	8,345	...	2,071	Requirements overestimated.
Travelling Allowances ...	28,980	23,416	...	5,564	Charged to Capital per detail of Capital expenditure ... ... RS. 2,08,060
Stationery and Office Stores ...	6,990	6,873	...	117	Deduct— December's salaries booked in January 31,172
Contingencies	5,040	4,328	...	712	1,76,888
					Add— June's salaries booked in July ... 34,322; Apothecaries, &c., debited to medical and sanitation. 6,527; Refunds ... 211; 41,060
Total ...	2,88,126	2,17,948	...	70,178	Total ... 2,17,948

MADRAS,
4th November 1875.

(Signed) R. G. MACDONALD,
Examiner of Railway Accounts.

NEGAPATAM,
25th October 1875.

(Signed) R. K. WILLIAMS,
Assistant Examiner.

SUBMITTED to Government with reference to their Order, No. 1,999, of the 22nd August 1872.

2. The general summary shows a net saving of Rupees 1,78,320, or 25·66 per cent. on the amount authorized, which is chiefly due to the actual outlay having fallen short of the anticipations on the maintenance of the permanent-way, repairs to rolling stock, quantity and price of coal, and on district establishments on the northern extension.

3. The larger variations between estimate and expenditure are accounted for in the column of remarks.

(Signed) J. H. M. SHAW-STEWART, Lt.-Col., R.E.,
Consulting Engineer for Railways.

Nos. 296 & 297. ORDER THEREON, 13th November 1875, No. 3,238.

RAILWAY, No. 39.

ORDERED to be forwarded to the Government of India.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 298. (DOCKET No. 3,239, dated 13th November 1875.)

COPY of the above forwarded to the Government of India with reference to their letter, No. 823 G.R., dated 17th June 1872.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 299. Read the following letter from T. D. HARRIS, Esq., Officiating District Engineer, Malabar, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Calicut, 28th September 1875, No. 98 :—

WITH reference to G.O., No. 296, dated 31st May last, I have the honor to forward a plan and estimate* for constructing two dry-earth sheds in connection with the latrines of the Royal Artillery Barracks at Cannanore duly approved of by the Officer Commanding the Provinces.

* Rupees 420.

No. 300. ORDER THEREON, 13th November 1875, No. 3,240.

MILITARY WORKS, No. 10.

THE estimate is sanctioned and will be carried out emergently on sanitary grounds.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 301. Read the following letter from T. D. HARRIS, Esq., Officiating District Engineer, Malabar, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Calicut, 27th October 1875, No. 110 :—

WITH reference to G.O., No. 2,863, dated 6th instant, requiring explanation upon the excess expenditure in paving the wells at Cannanore, I have the honor to forward copies of correspondence which my predecessor forwarded to the Controller of Public Works Accounts when submitting the completion certificate for the work.

Letter from the District Engineer, Malabar, to the Controller of Public Works Accounts, No. 54, dated 10th February 1875.
Letter from the Assistant Engineer, Cannanore Range, No. 397, dated 22nd January 1875, to the District Engineer, Malabar.
Letter from Overseer in charge of the Cantonment, to the Assistant Engineer in charge, Cannanore Range, No. 62, dated 23rd December 1874.

2. From these papers it will be observed that the chief causes for excess are for works not included in the original

estimate, dated so far back as 1869, such as pointing with cement, repairing broken parapet walls of the wells and drain, and the rates allowed in the original estimate being also rather low; in addition to these, the supervision could not be kept together owing to the works being 2 miles or more apart from each other.

3. In the statement of savings and demands, dated 26th January last, Rs. 884 on account of paving the wells at Cannanore, being the amount of excess above the original allotment, and Rupees 470 on account of converting old Pay Office into Garrison Hospital at Cannanore (being Rupees 36 less allotted in the Budget 1874-75, and Rupees 435 outlay above original estimate) were asked for; but in G.O., No. 824, dated 23rd March 1875, a sum of Rupees 470 was sanctioned for the conversion of the Pay Office, but nothing was allotted for paving the wells.

Item 23.

4. A comparative statement of the work is herewith forwarded, and I may add that I have carefully examined the works in question, and find that they have been well, carefully, and substantially executed. Trusting the information will be found satisfactory, I beg that you will direct the allotment of Rupees 884.

No. 302. ORDER THEREON, 13th November 1875, No. 3,241.

MILITARY WORKS, No. 10-A.

THE explanation given by the District Engineer in reference to the excess incurred on the estimate for paving the wells at Cannanore is accepted, but that officer's attention is called to the Order of Government of the 21st May 1859, No. 801, paragraph 2, which prohibits the burdening of Government with unnecessary enclosures as accompaniments to letters submitted to them. The letters attached to the District Engineer's letter should have been quoted by himself as far as necessary instead of being forwarded.

2. No allotment was made for this work in the orders passed on the District Engineer's statement of savings and demands for last year, because no supplementary estimate had been furnished, and there was no sanction, and it does not appear that any is now necessary seeing that the expenditure was incurred last year.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 303. Read the following Proceedings of the Madras Government in the Military Department, dated 2nd November 1875, No. 5,296 :—

ABSTRACT.—Communicating correspondence from the Quartermaster-General requesting the early provision of funds for the completion of the Lock Hospital at Bangalore.

No. 304. ORDER THEREON, 13th November 1875, No. 3,242.

MILITARY WORKS, No. 11.

RECORDED with reference to G.O., No. 3,228, dated 12th November 1875. The delay in providing funds is attributable solely to the

fragmentary manner in which the plans and estimates for different portions of the work have been prepared and laid before Government contrary to their Standing Orders.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 305. Read the following letter from Major H. R. MEAD, R.E., District Engineer, South Arcot, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Camp at Cuddalore, 18th September 1875, No. 135 :—

I HAVE the honor to submit, for the sanction of Government, a revised estimate of Rupees 11,450 accompanied by a comparative statement for Munsif's Court-house at Virdachellum.

1 Comparative Statement.
1 Revised Estimate.

2. In G. Os., No. 3,054 of 27th October and No. 3,348 of 26th November 1874, an estimate of Rupees 10,320 was sanctioned for this work; but subsequently in G. O., No. 1,293, of 7th May 1875, a revised standard design and estimate was ordered to be adopted. Hence the necessity for revision of the sanctioned estimate.

3. The excess over the original estimate is Rupees 1,130, the cause of which is explained in the comparative statement against the respective items; the differences call for no remark.

4. The work was commenced in the last official year, and Rupees 2,499-10-9 spent in that year in the collection of some materials and in constructing foundations; from the current year's Budget grant of Rupees 5,000, Rupees 2,635-11-10 have been spent, and the work is making fair progress.

5. In the Government Orders quoted in paragraph 2, an estimate of Rs. 10,190 was also sanctioned for a Munsif's Court-house at Villapuram; but before the revised standard design was received, doors and windows had been prepared and built in as provided for in the original sanctioned estimate; with this exception the revised standard design is being adhered to.

6. The sanctioned estimate for this work will, however, be exceeded by Rupees 440, in consequence of the increase in the scantling of wood-work as per revised design, and by increase in the rates for the items noted in the margin, those allowed by the late District Engineer being found inadequate. The excess in this case being within 5 per cent. on the sanctioned amount Rupees 10,190, the submission of a revised estimate is not considered necessary, but the allotment will require a small increase.

Items.	Rate in original Estimate.			Rate in Revised Estimate.		
	RS.	A.	P.	RS.	A.	P.
Main Building.						
Concrete ... C. yd.	2	4	0	2	9	0
Cut-stone ... C. ft.	0	5	0	0	12	5½
Plastering interior walls instead of pointing Sqrs.	1	4	0	1	15	0
Flooring	5	0	0	5	7	0
Painting doors, windows, and exterior wood-work with Carson's anti-corosive paint, mahogony color instead of wood-oil.	2	4	0	4	0	0
Witness Shed.						
Roofing with tarred palmyrah couples, rafters, reepers, pan-tiles, and chunam borders.	12	0	0	21	0	0

No. 306. ORDER THEREON, 13th November 1875, No. 3,243.

CIVIL WORKS, No. 21.

THE revised estimate for the Munsif's Court-house at Virdachellum, amounting to Rupees 11,450, is sanctioned.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 307. Read the following letter from Lieutenant-Colonel J. F. FISCHER, R.E., District Engineer, Madura, to Major-General G. W. WALKER, R.E., Chief Engineer, Public Works Department, dated Madura, 2nd November 1875, No. 3,127 :—

IN acknowledging the receipt of G.O., No. 2,949, under date the 15th ultimo, I have the honor to report that the number of Sub-Overseers therein sanctioned have been appointed by me.

2. I beg to submit for your favorable consideration the great difference of pay as at present attached to each of the 1st, 2nd and 3rd Grade Sub-Overseers, inasmuch as the duties to be performed by each of them are much the same in the six large Government taluqs which include several Zemindaries of considerable size and importance with a large number of roads requiring constant supervision over them.

3. Under these circumstances, I request that you will be so good as to raise the pay of 2nd Grade Sub-Overseers from 35 to 45, and that of the 3rd Grade from 20 to 35, to enable me to secure the services of competent men to whom I may, with safety, entrust small cash payments, to relieve the Taluq Overseers to some extent from this duty, as considerable hardship is felt by the coolies, &c., not getting their wages in due time under the existing arrangement.

4. In conclusion, I request that you will also be so good as to sanction the entertainment of a Clerk and a Lascar on Rupees 15 and 6 respectively per mensem, under each of the Sub-Overseers of the three grades above-mentioned to enable them to work in a satisfactory manner.

No. 308. ORDER THEREON, 13th November 1875, No. 3,244.

ESTABLISHMENT, No. 21-A.

No modification of existing orders in respect to the rates of salaries, &c., of Local Fund Overseers can be taken into consideration till the subject of Local Fund Establishments generally is disposed of in conformity with G.O., No. 3,094, of 1st November 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 309. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 4th November 1875, No. 599 :—

WITH reference to the Proceedings of Government, No. 1,536, dated 2nd June 1875, I have the honor to forward reports from the Locomotive Superintendent of the Madras and South Indian Railway Companies on the relative merits of wood and coal as fuel for locomotives.

From the Agent, Madras Railway, No. 1,066, 13th October 1875, with enclosures.
From the Agent, South Indian Railway, No. 626, 25th May 1875.
From do. do., No. 844, 11th September 1875.

2. The experience gained on each of these lines is in accordance with that of the Acting Locomotive Superintendent of the Madras Railway, who stated, as long ago as 1869, that "firewood is a most satisfactory description of fuel for burning in locomotives, not only in an economical point of view as regards the price, but also in causing less injury to the fireboxes and tubes, which are now more or less affected by the gases from coke, coal, or patent fuel."

3. The Acting Locomotive Superintendent of the Madras Railway writes that it appears from the records of the last fourteen years that the copper fireboxes of those engines which have been burning wood have worn for a longer time than in the case of engines using coal. The copper boxes appear to be much more affected by the gases from the coal than by those from wood. When wood is used firebars are not so liable to be burnt by the accumulation of clinkers as when coal is used. Tubes, on an average, last about the same time with either description of fuel.

4. The statement accompanying the Acting Locomotive Superintendent's letter, exhibiting working of engines burning respectively wood and coal, fully bears out the conclusion at which he has arrived.

5. The Locomotive Superintendent of the South Indian Railway writes :—" In my opinion our engine tubes and boxes run better with wood fuel than with coal," and, in illustration, instances an engine which having run close on 20,000 miles on examination was pronounced fit for 60,000 miles further.

6. It is to be remarked with reference to the relative duty of wood and coal on the Scinde, Punjab and Delhi as compared with the Madras lines, that a ton of wood on the former is estimated to measure from 90 to 100 cubic feet, whereas in Madras it is held to measure 67 cubic feet. A ton of coal would on the former line, it seems, be equivalent to from 155·7 to 220 cubic feet of wood, while on the Madras lines it would be equivalent to 201 cubic feet, a difference not so striking as that arrived at by a comparison of weights alone.

From R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Madras, 13th October 1875, No. 1,066.

WITH reference to your letter No. 1,156, of the 7th of December 1874, and to subsequent correspondence, I have now the honor to enclose you a copy of the Acting Locomotive Superintendent's report* upon the results which have attended the use of wood fuel, as compared

* No 445, 12th October 1875.

with coal, on the Madras Railway. I much regret the delay that has been allowed to occur in the completion of this report.

2. The enclosure to your letter mentioned above is returned herewith.

From E. C. BOODLE, Esq., Acting Locomotive Superintendent, to R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, dated Perambore Works, 12th October 1875, No. 455.

From	Consulting Engineer,	No. 1,156,	dated	7th Dec. 1874.
From	,,	,, 521,	,,	10th May 1875.
From	,,	,, 560,	,,	19th ,, ,,
From	,,	,, 680,	,,	16th June ,,
From	,,	,, 825,	,,	26th July ,,
From	,,	,, 909,	,,	19th Aug. ,,
From	,,	,, 1,069,	,,	1st Oct. ,,

WITH reference to the correspondence noted in the margin, relative to the detrimental effects experienced on the Scinde, Punjab and Delhi Railway by the use of wood fuel in engines working between Kurrachee and Kotree, I beg to state that, although wood has been very extensively used, and is still being used, for locomotive purposes on most portions of this line, the experience of such working has not led me to form a judgment in any way prejudicial to this description of fuel.

2. With regard to the Consulting Engineer's inquiry as to the high relative value of wood, the equivalent of 1 ton of coal varying from 1·73 to 2·45 tons of wood on the Scinde line, as compared with 3 tons of wood on this line, I regret that I am unable to offer an explanation of the differences in these equivalents. The difficulty of arriving at any conclusion in this respect without an acquaintance with the various local circumstances tending to increase or diminish the value of wood as a locomotive fuel on other lines is, I think, obvious. The quality of the wood supplied is of great importance, and would of course much affect the results in working; but I cannot understand how the results on the Scinde line, as regards the comparison in quantity used between wood and coal, have been so very favorable to the former.

3. From the report made to the Commissioner in Scinde by Major LeMessurier the "Babul" (*Acacia Arabica*) would appear to be the description of wood chiefly used; and the measurement allowed as the equivalent of a ton is quoted in Table A. as being from 90 to 100 cubic feet. I assume from this that the wood supplied to the Scinde line must be of a far lighter description than the average wood obtained in this Presidency, the average equivalent allowed on this line being 30 cubic feet measurement to 1,000 lbs. weight, or 67·2 cubic feet to the ton. Should, however, my assumption be incorrect, the difference in the measurements allowed would of course very seriously affect any results in consumption, as compared either with other fuels, or with consumption on other lines. The woods used on this line are of so many different descriptions that it is difficult to say whether among others the "Babul" is supplied; but, from the absence of any such effects as those described by Major LeMessurier, it may, I think, be inferred that, if "Babul" has formed any part of the supplies, the proportion has been a very small one. I presume that the authorities in Scinde have satisfied themselves of the accuracy of the average measurement in wood accepted by them as the equivalent of a ton; but, at the same time, I have every reason to believe that the equivalent fixed on this line for fire-wood used here is as correct an average as it is possible to obtain.

4. Adverting to the inquiry made by the Consulting Engineer in the correspondence under acknowledgment, as to the destructive action of the acid in the wood upon the boiler tubes, &c., I beg to inform you that I find, from the records of working during the last fourteen years, that the copper fireboxes of those engines which have been burning wood have worn for a longer time than in the case of engines using coal. The copper boxes appear to be much more affected by the gases from the coal than by those from wood; and when wood is used the firebars are not so liable to be burnt by the accumulation of clinker as when coal is used. Tubes, on an average, last about the same time with either description of fuel.

5. Accompanying this report is a list containing the record of the working of four wood-burning and of four coal-burning engines. From the results shown it will be seen that the life both of tubes and fireboxes exceeds very considerably the average as given in Tables C. and E. attached to Major LeMessurier's report.

MADRAS RAILWAY, LOCOMOTIVE DEPARTMENT.

Statement exhibiting working of engines burning respectively wood and coal.

WOOD-BURNING ENGINES.

Engine No. 38 has been running with wood for about thirteen years. During the last fourteen years and seven months this engine has run a mileage of 303,280. A new firebox and set of tubes are now being put in for the first time.

Engine No. 41 has been running with wood for about thirteen years. During the last fourteen years and nine months the mileage run has been 289,308. This engine is still working, but will shortly be brought into the shops for the first renewal, during the period mentioned, of firebox and tubes.

Engine No. 45 has been running thirteen years and seven months, during the whole of which time wood has been used. Mileage run 249,482. Is now being fitted with a new firebox and set of tubes, the first supplied during the period mentioned.

Engine No. 51 has been running thirteen years and two months, during the whole of which time wood has been used. Mileage run 261,703. This engine is still working, but will shortly be brought into the shops for the first renewal, during the period mentioned, of firebox and tubes.

COAL-BURNING ENGINES.

Engine No. 57 has been running thirteen years and four months, during the whole of which time coal has been used. The firebox was renewed after eight years and four months working. Mileage 105,327. This engine is still working, and it is anticipated that in two years tota renewal of firebox, boiler and tubes will be necessary.

Engine No. 58 has been running thirteen years and four months, during the whole of which time coal has been used. The firebox was renewed after eight years and two months working. Mileage 221,572. After working a further period of three years, mileage 102,170, a set of new tubes was supplied. This engine will also require renewal of boiler and firebox in about two years.

Engine No 62 has been running for twelve years and eight months, during the whole of which time coal has been used. The firebox was renewed after seven years and three months working. Mileage 181,059. The engine is still at work, but will shortly be brought into the shops for new tubes.

Engine No. 65 has been running twelve years and ten months, during the whole of which time coal has been used. The firebox was renewed after eight years and four months working. Mileage 197,767. This engine is still at work, but will shortly be brought into the shops for renewal of firebox, boiler and tubes.

(Signed) E. C. BOODLE,
Acting Locomotive Superintendent.

12th October 1875.

From W. S. BETTS, Esq., Agent of the South Indian Railway, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Negapatam, 25th May 1875, No. 626.

YOUR letter No. 319 of 18th instant, I have the honor to inform you that I communicated with our Locomotive Superintendent on the subject contained in your letter, and have received the following reply from that officer :—

"I note the result of the use of 'Babul' as a firewood on the Scinde, Punjab and Delhi Railway. We have not used this wood exclusively in our engines, and I cannot say that my attention has been called to any damage to our fireboxes from wood-burning. These boxes are carefully exam ined once a month, and their condition registered.

"I shall feel obliged if you will obtain me a more definite explanation of the supposed results of Babul wood; although my chemical knowledge of the action of acid upon copper under heat is limited, I cannot understand in what way the box becomes affected. I should have thought any fluid distilled from the wood would have been consumed at once, or else reduced to a salt and so drop out of the box through the firebars. What portion of the box is injured? And how does it show itself? And in what space of time does the injuries become apparent?"

From D. LOGAN, Esq., Acting Agent of the South Indian Railway, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Trichinopoly, 11th September 1875, No. 844.

YOUR letter No. 390 of the 16th June last was referred to the Locomotive Superintendent, who being busily engaged with the new rolling stock has sent me only now the following reply:—

"I have now the pleasure to send you the result of my examination of one of our wood-burning engines, six-wheel coupled goods engine No. 17 was the one selected. This engine is seven years old. A new set of tubes was put in her with which she ran twenty-two months. They were then drawn on account of repairs to her tube plate and replaced with new ends brazed on (of old tubes), she was coal-burning up to this time; she then began wood-burning, and has run close upon 20,000 miles with wood. I find the firebox in good condition, with a unifoım thickness of $\frac{1}{2}''$ (original thickness $\frac{7}{16}''$), on top and sides of box. The pieced tubes drawn are also in good condition, giving a weight of 19 lbs. against $23\frac{1}{2}$ lbs., the weight of a new one. These tubes are good for another 60,000 miles unless drawn for some special reason. I should say about 15 per cent. of our wood is Babul, the rest junglewoods whose names I do not know. In my opinion our engines, tubes, and boxes run better with wood fuel than with coal."

Nos. 310 & 311. ORDER THEREON, 13th November 1875, No. 3,245.

RAILWAY, No. 40.

ORDERED that these papers be forwarded for the information of the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 312. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Government of India, P.W.D., dated 13th November 1875, No. 3,246.

RAILWAY, No. 41.

From Government of India, No. 1,226 R., dated 15th May 1875.
To Government of India, No. 3,126, dated 4th November 1875.

SIR,—Adverting to the correspondence quoted in the margin, I am directed to forward herewith reports showing the relative merits of wood and coal as fuel for locomotives on the Madras and South Indian Railways.

2. It will be seen that the experience of the Scinde, Punjab and Delhi Railway, as to the ill effects of wood on the fireboxes of engines, is not borne out by the Railways of this Presidency. On the other hand, the results attained here seem to show the superiority of wood over coal so far as chemical action on the metal of which fireboxes are formed is concerned.

No. 313. Read again G.O., No. 2,935, dated 14th October 1875.

No. 314. ORDER THEREON, 13th November 1875, No. 3,247.

IRRIGATION, Nos. 22 to 39.
Account.

IT appearing that the item No. 67 in the Budget for the year, sanctioned by the Government of India, provides for the embankment of the Pennair between the Nellore anicut and Nursimacondah, that part of the Order of Government of the 14th October 1875, No. 2,935, which directs an application to be made to the Government of India for a grant of Rupees 6,700 for this work is cancelled.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 315. Read the following letter from Major H. R. MEAD, R.E., District Engineer, South Arcot, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation and Joint Secretary to Government, Public Works Department, dated Camp at Cuddalore, 27th October 1875, No. 155 :—

I HAVE the honor to request that sanction for Rupees 360, in addition to the Rupees 1,100 given in G.O., No. 190, dated 23rd January 1875, may be granted for the survey and levels in connection with the Ponniar river proposed embankments.

2. I regret to say that, owing to the numerous changes in this district, this work, although sanctioned last January, is not yet completed, and will not be until next month.

3. Owing to the difficulty of getting Surveyors, &c., the work was not begun until the end of May; it has been carried on I consider not as judiciously as it might have been under the charge of Mr. Garrett, who had, besides this, charge of the bridge over the Ponniar at Cuddalore.

4. Unfortunately the survey was commenced at the east end, and no attempt made to put down bench marks until the end of September, just before the levels were begun; the result is that it is impossible, owing to the weather and wet state of the country, to put them down now, and I have therefore been obliged to direct the levels to go on without them; as, however, there are sluices, &c., we shall have permanent bench marks to enable us to pick up our work hereafter.

5. The expenditure on these bench marks has been Rupees 410; there are only 20 mile stones and 133 furlong stones put down, the rest of the stones are collected

at different villages near the river, they will be available should it be considered advisable hereafter to put them down.

6. The survey work has been delayed by cholera; one Surveyor has died from it, and another Surveyor only a fortnight ago lost a servant by it.

7. The present weather is, of course, against them. Mr. Garrett, however, has now only the survey work to do, and is working hard, and I have every hope of it being all completed by the 20th of November, after that it will be necessary for the plans to be made fair, and for this I have asked for the services of a Draughtsman for one and-a-half months.

8. I regret that application for this extra sanction required was not as it should have been made before, the reason is that when I took charge of the district I was not aware that it was required, and when it came to my notice I had to make several references.

No. 316. ORDER THEREON, 13th November 1875, No. 3,248.

IRRIGATION, No. 39.
Establishment.

SANCTION for Rupees 360 is given in addition to that for Rupees 1,100 accorded in G. O., No. 190, of the 23rd January 1875, for the surveys in connection with the Ponniar embankments in South Arcot.

2. All the bench mark stones should be fixed in due course.

3. The Railway levels should be obtained by the District Engineer and plotted on the survey, so that the fall of the country, on the line traversed by the Railway to the south of the river, may be clearly seen.

4. Levels and sections of the Korayaur branch or channel of the river have probably been taken, but if not they will be required. It is understood that the capacity of the main channel of the Ponniar is insufficient, and that it is probable that the embankment at the head of the Korayaur will have to be removed and placed some miles lower down off the line of the branch which rejoins the principal channel.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 317. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 9th November 1875, No. 606 :—

WITH reference to the Order of Government, dated 11th October 1875, No. 2,907, I have the honor to report that the Examiner of Railway Accounts, to whom the preparation of the returns in question has lately been made over, states that he will be able to complete the Analytical Tables of the Reviews of the Revenue Accounts of the Railways in this Presidency within six months of the end of the half-year to which they relate. Allowing a fortnight for their examination in this office and

one month for printing, there appears every probability that the reviews will in future be in the hands of the Government of India within eight months of the close of the half-year to which they relate. The reviews for the first-half of 1875 are now well forward, and should be ready in January next.

2. In reply to the suggestion made by the Government of India in paragraph 2 of their letter embodied in the Proceedings of Government under reference, I agree with the Examiner of Railway Accounts that the results deduced from the operations of a whole year would be more reliable than those at present obtained from the transactions of each half-year, while the saving of clerical labor would be considerable.

Nos. 318 & 319. ORDER THEREON, 13th November 1875, No. 3,249.

RAILWAY, No. 42.

ORDERED that the Government of India be addressed.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 320. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Government of India, P.W.D., dated 13th November 1875, No. 3,250.

RAILWAY, No. 43.

SIR,—Adverting to your letter, No. 2,426 R., dated Simla, 29th September 1875, I am directed to forward a communication received from the Consulting Engineer for Railways, in which that officer mentions the time necessary for preparation of the half-yearly Reviews of the Revenue Accounts; and expresses an opinion, in which His Excellency the Governor in Council concurs, on the proposal to substitute yearly for half-yearly reviews.

No. 321. Read the following letter from Colonel C. H. DICKENS, R.A., Secretary to the Government of India, Public Works Department (Account—Irrigation), to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department, dated Simla, 29th October 1875, No. 366 A. I. :—

I AM directed to state, in confirmation of telegram of this day's date, that the Government of India have been pleased to approve of the appointment of Mr. Wilson, recommended in your telegram of 17th instant, as the Deputy Collector to assist in the preparation of the Revenue Accounts of Irrigation Works in Madras.

2. I am to add that the Government of India are desirous that the work of preparing the Revenue Accounts of Irrigation Works should be put in hand at once, and in this view I am to authorize the entertainment by the Government of Madras of such additional establishment of Clerks and Accountants that may be found necessary, a report of the same being made to the Government of India.

3. The salary which the Government of Madras propose to give Mr. Wilson while employed on this duty should also be reported to the Government of India.

No. 322. ORDER THEREON, 13th November 1875, No. 3,251.

IRRIGATION, No. 40.
Establishment.

COMMUNICATED, through the Revenue Department, to the Revenue Board; also to the Chief Engineer for Irrigation and Controller of Public Works Accounts.

2. No more time will now be lost in correspondence on the subject of starting Capital and Revenue Accounts of Irrigation Works. But a conference will be arranged immediately after the visit of the Prince of Wales to Madras at the Revenue Board Office; which shall be attended by one or more of the Members of the Board, by the Chief Engineer for Irrigation, and by the Controller. At which a programme of operations shall be settled, and full instructions given to Mr. Wilson and to Lieutenant Christie, R.E., for their guidance, and all subsidiary details settled.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following papers :—

No. 323. From Major J. BEATTY, R.E., Acting Superintending Engineer, Godavery District, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Dowlaishweram, 11th October 1875, No. 2,104.

WITH reference to paragraph 6 of G. O., No. 1,858, of 2nd July 1875, I have the honor to inform you that on reconsideration Mr. Vanstavern finds that the style of buildings proposed in his letter, accompanying the report of last year's coal-boring operations, would be so expensive that it will be better to defer their construction until good coal has been struck, and the site for a shaft determined.

2. He, therefore, now proposes the construction of thatched sheds of a more roomy and substantial character than those used in the previous two seasons' borings, such as would afford sufficient shelter through a rainy season, if necessary, so that the borings may, if possible, now be carried on without interruption until the question whether there is good coal there be finally settled. Mr. Vanstavern estimates the cost of such a set of sheds at Rupees 258.

3. I have delayed this letter in expectation of receiving the orders of Government on Mr. King's report, and his views as to future operations; but, as the season for resuming work at the coal-borings is approaching, it becomes necessary to determine how Mr. Vanstavern is to be relieved at Dumagudiem if he is to return to the coal-field.

4. Possibly, Mr. King may be able to provide a competent person to take charge of the party instead of Mr. Vanstavern, and this is very much to be desired in the present reduced state of the department. But if it be decided that Mr. Vanstavern is to return to the borings the only arrangement that I can suggest for relieving him is that Mr. Sub-Engineer Joyce should be sent to the charge of the Dumagudiem Range, the present Foreman of the Government Workshop, Serjeant Bennett, promoted to the

charge of the Workshop, and a trained European Foreman appointed to take Mr. Bennett's present post.

5. There will, however, doubtless be considerable delay in finding a suitable person for the post of Foreman of the Dowlaishweram Workshop, and until he joins Mr. Joyce cannot be spared for Dumagudiem ; so that if the arrangement I have now suggested be approved, I beg to be favored with early instructions.

No. 323-A. Endorsement of the Officiating Chief Secretary to Government, dated Fort St. George, 27th October 1875, No. 617.

From W. KING, Esq., Deputy Superintendent of the Geological Survey of India, to the Hon. D. F. CARMICHAEL, Officiating Chief Secretary, Madras Government, dated Madras, 23rd October 1875.

WITH reference to the Proceedings of the Madras Government, Public Works Department, 2nd of July 1875, and the order thereon, No. 1,858, I have the honor to lay before you my further considerations on the coal-boring operations at Beddadanole in the Godavery District.

2. I have to apologize for not having reported to you earlier on this matter, but I was unable to do so until now, owing to severe illness.

3. The operations at Beddadanole during the last season, that is from the beginning of February to the end of May, do not show such satisfactory results as I had anticipated, the coal found up to the present date being still very poor and only of a very slightly improved character on that of the seams struck last year. The result is, in fact, so poor that I feel some hesitation in recommending that further trials should be made during the next season.

4. My intended line of trial holes across the field has not however yet been carried out completely, owing to the late arrival of the new boring tools in the middle of April, and thus Mr. Vanstavern was not able to carry down the holes to a sufficient depth for us to become acquainted with the full thickness of the coal bearing strata.

5. Further, it is also possible that the thin seam of coal last struck in No. 9 bore-hole may improve as it goes westward, but there was no time or opportunity for the hole immediately west of it to be carried down to a sufficient depth to touch on this seam, which it would have done were the coal of any extent.

6. Two other bore-holes in the same line, the sites of which I had indicated to Mr. Vanstavern, and on which I remarked in my report of last year, still remain untouched.

7. Under these conditions of an uncompleted section of the whole thickness of the field, I would still urge that the explorations be continued for another season, commencing as soon as Mr. Vanstavern might think it safe to start operations in that feverish locality. I myself am in the habit of taking the field early in November, but it is questionable whether a fixed camp like Mr. Vanstavern's could be safely pitched at Beddadanole so early in the season.

8. Should the borings which I have indicated to Mr. Vanstavern not show any better result than that already obtained, I should then be reluctantly compelled to

recommend stoppage of the work, although there still remains a large area under which chance seams might be struck.

9. In conversation with Major Beatty, the District Engineer, at the end of the season, he suggested to me that the expenses incurred during this exploration might be reduced if Mr. Vanstavern had charge of the range in which the coal field lies, supposing a vacancy occurred in the Ellore Division, his Assistant (Mr. Moore) and the Native Foreman carrying out the mere mechanical work, while he himself could inspect the operations when necessary. On my writing to Mr. Vanstavern—this hardly being a matter in which I was concerned—he expressed his acquiescence in the views suggested by Major Beatty.

10. As regards the suggestion for a fixed camp, I do not think that this would be advisable until more satisfactory results are obtained from the bore-holes referred to above, as the giving up or continuation of the work depends, I think, on what may be found in these holes.

11. During the present season, Mr. Vanstavern has pierced the upper part (western side of the field) of the strata, and a good thickness of the lower part to the bottom of the series; but their still remains an intermediate portion which could not be done in the time at his disposal. Within the thickness of strata thus examined, there are eight different seams of coal, *viz.*, one seam of 6′ 8″, in No. 6 bore-hole at 177′ 4″, one in No. 5 of 8′ 5″ at 181 feet, and one (better quality) in No. 9 at 88′ 6″. Below this, there are the still unexplored strata referred to in paragraph 4, which I propose to try this season.

12. In the lower part of the series there are three seams in No. 4 hole (ascertained last year) and two in No. 8 (one at 150′ 9″ and the other at 236 feet below the surface), and at 263 feet, Mr. Vanstavern struck the floor of the field.

13. Nothing is yet known of the lateral extent of these seams, except in the case of that in No. 5 which is, I think, an extension of the seam struck last year in No. 2 (about half a mile north). In this case, there is no improvement in the quality of the coal.

14. The coal of all these seams is very poor, though that in No. 9 bore-hole is of slightly better quality, yet not sufficiently so as to have been worth sending to Calcutta for assay. Neither is this coal nor that of the other seams worth extraction for any purpose whatever.

15. It is as I have remarked in paragraph 5 possible that the seam in No. 9 may improve in its extension to the westward, and this can be ascertained by deepening No. 5 to 400 feet. I should wish this to be done, as a very good idea of the extension of the seam for some 2,000 feet would thus be obtained. It is probable, however, that the hole may have caved in since Mr. Vanstavern left it, in which case an intermediate site between 9 and 5 may be taken where the seam ought to be struck under 200 feet from the surface.

16. On comparison of the several sections obtained, the want of any resemblance between the beds in the different holes is very remarkable; for I had expected that there was sufficient undulation among the strata to have allowed of the same beds appearing in two or more of the holes now put down. As it is, however, I am driven to the conclusion that each hole in the line referred to in paragraph 4 passes down

through different thicknesses of strata, and that no repetition of beds by folding has taken place.

17. On this supposition the intermediate unexplored strata, or the beds lying between the bottom of bore-hole No. 9, and those at the surface of No. 4 (last year's report) must be about 400 feet in thickness, and these may be pierced by deepening No. 9 and sinking the new bore-hole yet to be carried out in my line of section at point No. 10 as already indicated to Mr. Vanstavern.

18. It is of course possible, considering the roughly lenticular form of many of the beds exposed in the streams, that the difference of character shown in the several sections may be the result of thinning out or replacement of some of the beds; but this is hardly probable. The close correspondence of the depths at which the coal was struck in holes Nos. 5 and 6 (at 172 feet in No. 5 and 177 in No. 6) might also lead to the inference that it is from one and the same seam; but there is such a difference in the constitution of the sand stones in each hole, and the dip of the strata seen at the surface is so persistent that the seams must be considered as separate ones.

19. The work therefore which I should advise to be executed during the next season is to deepen bore-holes Nos. 5 and 9 to the depths of 400 and 310 feet respectively, or, if the holes have fallen in, that new ones at distances further east which Mr. Vanstavern may find convenient after consultation with me in the field should be opened; while No. 10 should be carried out as originally suggested to over 300 feet.

20. Should these operations give much better results than those hitherto obtained, additional sites can then be pointed out for ascertaining the extent of any workable coal.

TRANSFERRED to the Public Works Department for disposal.

(Signed) D. F. CARMICHAEL,
Officiating Chief Secretary.

No. 324. ORDER THEREON, 13th November 1875, No. 3,252.

CIVIL WORKS, No. 21-A.

HIS EXCELLENCY the Governor in Council regrets to learn that the result of the coal-boring operations at Beddadanole is so poor that Mr. King feels some hesitation in recommending that further trials be made. Demi-official communications received by the Superintending Engineer of the Godavery District show that Mr. Vanstavern also considers that further outlay is not likely to result in discovering coal, though it may add to the geological knowledge of the country. And it is probably this latter consideration that has weighed greatly with the Deputy Superintendent of the Geological Survey in finally recommending the prosecution of certain borings specified in his letter. The more promising field for exploration is doubtless that within the Nizam's territory.

2. It was intended, however, that these investigations should be exhaustive of the inquiry whether coal existed within the limits of the Madras Presidency; a vexed question which has been set at rest finally as regards the Kistna District. And His Excellency the Governor in Council resolves that the same shall be done for the

Godavery District, more especially as time permitted so little use to be made of the new boring materials obtained from England last year. But it will suffice if operations are conducted in the first instance by the Assistant whom Mr. Vanstavern was allowed to entertain in G.O., No. 2,346, of 20th August 1874, whom he will depute to commence the work specified in paragraph 19 of Mr. King's letter.

3. The work in the Upper Godavery consists for the present of maintenance of existing navigation works, for the improvement of which funds are not likely to be available; and it is over by the commencement of the season before which Mr. King does not consider it safe to work at Beddadanole. Mr. Vanstavern may therefore well be spared from it to direct his Assistant's work when required, and to confer with Mr. King when he takes the field in the Godavery District this season. There is, in fact, so comparatively little to be done in the Upper Godavery, and it is so easily visited from Dowlaishweram during the rains, when navigation is open and the country most healthy, that the Superintending Engineer, Godavery, may find it advisable to utilize the services of an experienced officer like Mr. Vanstavern in the delta, and replace him at Dumagudiem by a steady subordinate. But it is not desirable that the Workshop Superintendent should be transferred to general duty.

4. There will be no occasion to construct a permanent camp at Beddadanole, as it is not likely that the work will have to be carried on into the monsoon of 1876. But roomy and substantial thatched sheds, such as those described in the 2nd paragraph of Major Beatty's letter, should be erected at any rate for the comfort and health of the working parties.

(Signed) G. W. WALKER, Major-General, R.E.,

Secretary to Government.

No. 325. Read the following letter from Colonel F. J. MOBERLY, R.E., Superintending Engineer, Chingleput, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Guindy, 5th November 1875, No. 3,272 :—

One Plan.

IN reply to G.O., No. 2,988, of 26th ultimo, I have the honor to observe that Messrs. Binny and Co. are in error in stating that the bungalow at Ennore was swept away by any act of the Department of Public Works.

2. The fact that its foundations were badly undermined was noticed by more than one person in April 1874; and I understand that part of the building was washed away even before that; moreover, the cut which was made at the south end, to discharge the early freshes of last year, was entirely closed before September, and the heavy floods broke through the bar in midstream, and ate their way down even beyond my line. I doubt if even the unusual flood of 1874 would have destroyed a sound building.

3. As to the future, I would observe that our difficulty is not at all in discharging flood-water—the Corteliar will get out without any assistance from us—our object is to keep the mouths open as long as possible for the supply of sea water in the hot weather to the large area of salt pans, and to the canal by which the manufactured salt is conveyed to Madras.

4. My experience shows that if we open well to the south the action of the sea is much delayed in closing the mouth. I believe that a jetty in prolongation of the right bank, carried out far enough to screen the mouth from the surf, would enable us to keep this river open through the year.

5. I executed a work like this in Cocanada in 1853, and the river has never been closed since. We have a very much larger tidal basin at Ennore than we have at Cocanada. In 1857, the cut opened at the southern extremity of the Pulicat channel by me shifted very slowly to the north; and some years, I am told, passed before it reached the mainland and fairly closed.

6. The cut at Ennore, as I have laid it out, is entirely within river limits; in heavy floods as above mentioned the river cuts even south of it. I do not therefore understand how Messrs. Binny and Co. can consider us in any way responsible for damages, even if they are caused by the river, and not their neglect.

7. The bar has been closed this year, although it was very fairly scoured in 1874. We must expect, unless we have heavier rain than appears likely, great difficulty next year in the supply of salt water, and this difficulty will be very much increased if we leave the river to break out at the north end or even midway, the strong south current will probably shut it in a few weeks.

No. 326. ORDER THEREON, 13th November 1875, No. 3,253.

CIVIL WORKS, No. 22.

THE Superintending Engineer, Chingleput, may be right in stating that the cut as laid out by him is entirely within river limits; but he admits that in heavy floods the river is liable to cut even south of the passage he would desire it to take. He states further that there is no difficulty at all in discharging flood water, which makes its way out unaided. Under these circumstances, His Excellency the Governor in Council would prefer that the cut be made sufficiently clear of Messrs. Binny and Co.'s premises as not to be likely to work back as far as their boundary.

2. The Revenue Survey Map, forwarded by Messrs. Binny and Co., shows two mouths to the back-water. If they are both due to artificial cuts, a great mistake has been committed, and every endeavour should be made to maintain but one. And an attempt may be made, if funds are available, to keep it from shifting by roughly revetting its southern bank. That it can ever be permanently kept open is improbable.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 327. Read the following letter from Major-General M. K. KENNEDY, R.E., Secretary to the Government of Bombay, Railway Department, to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department, dated Bombay Castle, 23rd October 1875, No. 1,223 :—

I AM directed to acknowledge the receipt of your letter, No. 2,733, dated 21st ultimo, and to forward the reply of the Agent, Great Indian Peninsula Railway Company, to the proposal made to him to increase the speed of the Mail Train from Raichore to Poona to 21 miles an hour, in order to admit of a later start from Raichore, and at the same time preserve the present hour of arrival at Bombay.

2. This Government, I am to state, regret that they do not feel in a position to bring further pressure to bear on the Great Indian Peninsula Railway Company, who, it will be seen, are unwilling to do more than reduce the halt at Raichore to 20 minutes; a reduction which will, as a rule, result in a late start with the consequent necessity of making up time between Raichore and Poona; there are strong objections, as explained in my letter No. 845, dated 27th July last, to the later hour proposed for the arrival of the Mail Train at Bombay, and it would seem that, under the circumstances, the best solution of the difficulty would be to accelerate the speed between Tadputri and Raichore until the Pennair bridge is pronounced safe.

From H. J. P. THOMSON, Secretary, Great Indian Peninsula Railway Company, to Lieutenant-Colonel H. F. HANCOCK, R.E., Under Secretary to Government, dated Bombay, 15th October 1875, No. 9,146.

IN reply to your letter, No. 1,116, dated 21st September 1875, and its enclosures, regarding an alteration of the through Mail Train Service between Bombay and Madras, I am directed to state that the proposal of the Madras Railway Company seems to amount in effect to an application for a considerably increased speed over the Great Indian Peninsula Railway in order to save the Madras Company the additional expense involved in faster running upon their line. This does not appear to be quite fair to us, inasmuch as the reason for the alteration is not a matter in which this Company are in any way concerned

2. The proposal to reduce the halt at Raichore to 20 minutes, instead of 40, will put us to some inconvenience, because it will involve almost always a late start from Raichore; in other words, 20 minutes is not enough to do what has to be done at that place. But we will not raise any difficulty about that under the circumstances.

3. If Government would agree to allow a later arrival in Bombay, *viz.*, 12-15 P.M., instead of 11-15 A.M., there would be no further difficulty in the matter; but if not, the only way of doing what the Madras Company desire, appears to be for them to run faster up to Raichore and to reduce the halt at Raichore to the 20 minutes suggested in the papers. This will only leave the Madras Company in about the same position as we are in, *viz.*, that from Raichore to Poona we run at a slower pace than we do from Poona to Bombay, whilst our pace between Bombay and Poona is much higher than theirs will be between Tadputri and Raichore.

No. 328. ORDER THEREON, 13th November 1875, No. 3,254.

RAILWAY, No. 38.

COMMUNICATED to the Consulting Engineer for Railways with reference to G.O., No. 2,732, dated 21st September 1875.

The resumption of night trains on the North-west Line of the Madras Railway will be carried into effect at the earliest date practicable; the speed between Tadputri and Raichore being increased to the required extent so long as it may be necessary to delay the departure of the train from the former station on account of the insecure condition of the Pennair bridge.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following:—

No. 1,272.

No. 329. MEMORANDUM.

THE head-quarters of the Western Delta, Godavery, will ere long be moved to Chettipett, where offices for the Range Officer and two Assistant Engineers are now being erected. The question as to the way in which dwellings for these officers can be provided has several times been under consideration, and the difficulty experienced was that a house which an unmarried officer would be willing to occupy and pay for would not do for a married officer. It is considered, however, that were an approximation made to the unit system approved in connection with Military Officers' quarters in Proceedings, Madras Government, No. 1,928, of the 20th June 1866, the difficulty, if not fully got rid of, might be faced. A building on the plan of the Rest-house not long since built at Dowlaishweram affords about as much accommodation as two units of the Military plan and would be a fairly convenient residence for the Range Officer, while a similar building would do for the two Assistant Engineers. The cost of each building, including the necessary out-buildings, would not exceed 4,500 to 5,000 Rupees, against 8,000 Rupees, the estimated cost of two units in Bengal, and a rent of 30 to 33 Rupees for the double unit would yield 8 per cent. on the Capital sunk, and at the same time be quite within the means of the officers who would occupy the buildings. Major Beatty states that the officers at present in the range are anxious to have houses erected for them, and are willing to pay any reasonable rent, and it is considered that if such permanent accommodation be provided, the occupation of the residences may fairly be made compulsory.

Sanctioned in G.O., No. 2,416, dated 14th October 1872.

2. Plans and estimates will shortly be received from the Superintending Engineer, and it is recommended that in preparing the Provincial Budget for 1876-77, provision may be made to the extent of Rupees 9,000 for residences at Chettipett.

CAMP AT VENCATAGHERRY, 29*th October* 1875.

(Signed) JOHN MULLINS, Lieut.-Colonel, R.E.,
Chief Engineer for Irrigation.

No. 330. ORDER THEREON, 13th November 1875, No. 3,255.

CIVIL WORKS, No. 24.

THE Chief Engineer for Irrigation will be informed that Budget provision can only be made for works, the plans

and estimates of which have been sanctioned. Application for funds must now be made from the Reserve of 1876-77. The rent to be charged will be 6 per cent. on substantive salaries, as in the case of Police Officers in accordance with ruling communicated in G.O., No. 196, dated 23rd February 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 331. Read the following letter from Colonel F. J. MOBERLY, R.E., Superintending Engineer, Chingleput, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Guindy, 1st November 1875, No. 3,197 :—

I HAVE the honor respectfully to solicit the consideration of the Government to Order, No. 3,507, dated 21st November 1865, by which I was removed from the Department of Public Works. In reply to my personal appeal to the then Governor Sir W. Denison, I was reinstated in a vacant Executive Engineership, with a promise of speedy promotion to my former position.

2. Resting on this assurance, and the actual promotion which I received, I forbore from urging my request for an investigation into the statements made by Mr. Levinge, the correctness of which I wholly denied.

3. I have, however, after ten years not yet recovered the rank to which I was promoted in 1863, during that period I have lost by difference of pay upwards of Rupees 20,000.

4. Up to April last, however, I drew the pay of my military rank and departmental grading; but since that date, on which I obtained the rank of Regimental Colonel, I have fallen under the limitation of Notification of Government of India, No. 341, of 7th October 1870, and am prevented from drawing Rupees 135-15-0 of the pay to which I am actually entitled by my position in the Regiment and Department.

	RS.	A.	P.
Superintending Engineer, 2nd Grade	750	0	0
Military pay	960	15	0
	1,710	15	0
Maximum	1,575	0	0
	135	15	0

5. I am aware that there is no vacancy in the superior grade, but I cannot but think that the Government of India would, on a representation from the Government, admit of so small an extra grant as would be required to allow of my promotion to first-class, which may perhaps be even met by savings in the Controller's hands.

Rupees 50.

No. 332. ORDER THEREON, 13th November 1875, No. 3,256.

ESTABLISHMENT, No. 21-B.

COLONEL MOBERLY will be informed that the Government are not prepared to comply with his request.

2. It is observed that Colonel Moberly's present departmental rank is that of Executive Engineer, 1st Grade, though he receives a personal allowance to make up his salary to that of his old grading as Superintending Engineer, 2nd Grade, and his name is shown in italics with that grading in the departmental list, in conformity with G.O., No. 2,124, of 28th August 1873.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 333. Read the following letter from A. B. SAMPSON, Esq., Under Secretary to the Government of India, Public Works Department (Establishment—General), to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department, dated Simla, 25th October 1875, No. 1,570 E.—G :—

REFERRING to entries, Nos. 330-31 (page 25), in the abstract of Proceedings (Establishment) of the Government of Madras for the month of July 1875, I am directed to observe that Standing Orders, which are intended to apply to Madras and Bombay, have a foot-note added to them thus: "This order is applicable to Madras and Bombay;" and to request that all Standing Orders hitherto issued bearing the above note may be adopted for guidance.

2. In future a signed copy of each set of Standing Orders will be sent for information and guidance, and with it a letter specifying the orders applicable to the Madras Presidency.

No. 334. ORDER THEREON, 13th November 1875, No. 3,257.

ESTABLISHMENT, No. 21-C.

COMMUNICATED to the Controller and Under Secretary, Public Works Department, for embodiment of the Standing Orders in question in the New Code which they are compiling.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following :—

No. 335. From the Superintending Engineer, Chingleput, dated 23rd October 1875. No. 3,106.

No. 336. ORDER THEREON, 13th November 1875, No. 3,258.

IRRIGATION, No. 41.
Account.

UNDER the circumstances represented in the correspondence submitted, Rs. 342 are sanctioned for the Peroonjoly Tank in the Chingleput District in addition to the

1,000 Rupees passed in G.O., No. 2,918, of the 13th October 1874. It has not been explained why application for this supplemental sanction was not long since made.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 337. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 5th November 1875, No. 602 :—

IN continuation of my letter No. 434, dated 5th August 1875, and with reference to paragraph 2 of G.O., No. 2,387, of 19th August 1875, I have the honor to lay before the Government for such further action as may seem necessary a letter* from the Locomotive and Carriage Superintendent to the Agent of the South Indian Railway Company, giving that gentleman's opinion of the rolling stock lately sent out from England for the Company's metre gauge extension.

* No. 936, dated 9th August 1875.

2. It is most important in the interests of Government that stores and stock supplied from England should be of a quality suited to the exigencies of a tropical climate, and in this matter this office is quite powerless to do more than scrutinise carefully the indents and see that the prices proposed are such as to secure what is desired. The Government will observe that the locomotives have formed the subject of a separate communication from the Company's officials in this country.

3. From recent inspections I am led to believe that the engines are working better than they were, but the fact that several large firms are involved in these criticisms of the Locomotive Superintendent, leaves little room for doubt that the home inspection might be more effective with advantage.

4. The price paid for these same engines, the Government will remember, was so ample as to attract the notice of the Government of India, and there is no reason to suppose that the rates sanctioned for the other stock was insufficient to secure good quality.

SOUTH INDIAN RAILWAY.

Letter from the Locomotive and Carriage Superintendent, to the Agent, dated Negapatam, 9th August 1875, No. 936.

YOUR No. $\frac{5518}{2678}$.

Major Smith's comments on the English rolling stock have a great deal of truth in them; indeed, the most unsophisticated observer seeing the stock now it has been out in the sun could not fail to see something was wrong. I have in my letters home to Mr. Bruce so frequently urged the need of really conscientious supervision over what is sent out here. Whatever we get should be good of its kind. The Company is a great gainer in the long run by not having the usual material "for India" sent them. Major Smith walked round and asked questions which I had much rather not have answered, but could not well avoid. I should have preferred an appeal to Mr. Fox to have the stock better looked after in detail than any remarks by an outside official. The shortcomings of the English stock has been more commented upon, as

every one seemed to expect the "carriage from home" would be a cut above the usual run of country workmanship. The Gloucester and Lancaster Company have each delivered some stock:—

Gloucester Company, eighteen 3rd-class, two 2nd-class horse-boxes, and two composites, seven 3rd-class and one 2nd-class.

Lancaster, one 1st-class and seven sets of fittings.

Each Company has also sent some goods stock. I do not notice that any are better than the others. Unseasoned timber is the great fault with all of them. I have not one passenger vehicle running without a split pannel and shrunk joints, and some of them have seven and eight panels split and the timber run up to a most unfortunate extent, which will involve, when I have time, almost dismantling the whole vehicle. The head stocks are also in most cases badly riven and shaken by the sun, as also the frames of the goods stock that lay out a short time in the yard before erection. Want of finish in the 1st-class and composites is also marked; the timber was not burnished up smooth before varnish or polish was put on, as though it was hoped the varnish would disguise the want of labor on the timber, but not even enough of varnish was put on; one coat inside is, I am sure, all the carriages had, and outside, I should say, not more than two and very little rubbing down. The gilt heading is of such common kind that it has all fallen off nearly; plaster gilt is no use for such work, wood or metal only will stand extreme temperature.

2. The horse-boxes had only the ribbed flap door on either side to come against a horse in the vehicle, which any owner would, I imagine, very strongly object to, and the sweep of the hinges is such as to allow a gap between side of box and flap door when down by enough for a pony to get his foot in. Third-class carriage seats are unsupported underneath at the centres and are bending down very much. I am putting a support in them at the centres. Of the engines, I have written last mail very fully to Mr. Fox, and hope, or rather I am sure, he will have those engines which follow got up more suited for the country. I have suggested that Mr. B. Wright, who is now at home from the Madras Railway, should be asked to give the makers a look round. He would detect the little faults more readily perhaps than any one unused to Indian requirements and climate.

No. 338. ORDER THEREON, 13th November 1875, No. 3,259.

RAILWAY, No. 44.

ORDERED that the Home Government be addressed on the subject.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 339. Read the following Proceedings of the Madras Government in the Military Department, dated 15th October 1875, No. 5,020:—

ABSTRACT.—Approving estimate for latrines for the Commissariat Establishment employed in the Stores and in the Bakery at Bangalore.

No. 340. ORDER THEREON, 13th November 1875, No. 3,260.

MILITARY WORKS, No. 12.

THE plan and estimate which are in full detail are approved, but no funds are available for the work.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following :—

No. 341. Proceedings of the Standing Committee for Public Ceremonials in conference with the Special Committee named in G.O., No. 665, of 2nd October.

Present.—All Members, except L. R. BURROWS, Esq.

President.—Brigadier-General T. RAIKES, C.B.

Subject.—Details of arrangements for the ceremonial of laying the Memorial Stone of the Madras Harbour, additional to those laid down at the Meeting of 26th October, and generally approved in G.O., No. 767, of 3rd November.

The united Committees met at the office of the Superintendent of the Harbour Works, and subsequently adjourned to the site of the ceremony. The following arrangements were approved :—

I.—That, with the exception of those Masons whose presence would be required on the platform to assist their Grand Master in laying the Memorial Stone, (not to exceed twenty in number, of whom Mr. Miller would supply a list), the general body of Free Masons should remain standing in the space between the platform and the raised benches, into which they would march in procession; the Band of the 89th Regiment, which was understood to be available, being alone permitted to stand on the tramway. Mr. Miller to state as soon as possible the numbers of Masons of each Lodge expected to attend.

II.—That the Secretaries to His Excellency the Governor be requested to undertake the disposal of the tickets admitting to the enclosure, after placing 200 at the disposal of Mr. Miller for the friends of Masons. The Committee consider themselves incompetent to undertake this duty. It has been subsequently ascertained that the following number of seats will be available, *viz.* :—

On the benches flanking the Cenotaph, 700 (including 200 for Masons' friends).
On the benches on the platform, 100 (ladies only).

Some chairs to be placed on the platform for the Prince, the Governor, &c. &c. &c., but the majority of both suites will be standing.

III.—So much accommodation having been reserved, it was agreed that the general public should be admitted to the beach, barricades being erected 50 feet east of the Memorial Stone. A strong opinion was expressed that the number of persons allowed to go on the Pier should be limited; the exact number being left to Captain Taylor and Major Swanston to decide.

(Signed) T. RAIKES, C.B., Brigadier-General,
President.

No. 341-A. ORDER THEREON, 15th November 1875, No. 3,261.

ESTABLISHMENT, No. 21-D.

APPROVED and communicated to the Secretaries to His Excellency the Governor.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following papers :—

No. 342. Endorsement of the Under Secretary to Government, Revenue Department, dated Ootacamund, 29th September 1875.

Proceedings of the Board of Revenue, dated 7th September 1875, No. 2,502.

Proceedings of the Madras Government in the Revenue Department, dated 12th August 1875, No. 1,682.

ABSTRACT.—Communicating to the Board of Revenue, for information and guidance, Government order, Public Works Department, on papers regarding the compilation of revenue statements of irrigation works.

In paragraph 1 of the foregoing Government order it is remarked that the Board have not apprehended the objects for which revenue statements of irrigation works have been ordered to be compiled, or the necessity of affording with these such explanations and information as will enable them to be understood.

2. The particular statements here referred to are those which originated in G.O., dated 28th September 1870, No. 2,335. They were first called for in consequence of the difficulty which a Superintending Engineer experienced in connection with the preparation of estimates, and were intended to show the total area and revenue thereon due to irrigation, under the Godavery anicut. A statement of irrigation revenue having been sent in for the Godavery, and certain obscurities (which were called discrepancies, but were not so, arising chiefly from things not comparable being compared) having attracted attention, a discussion ensued as to the principles on which the items of irrigation revenue should be determined. The principles suggested by the Board were approved, and a form was issued to Collectors. This form came before Government in G. O., 18th June 1873, No. 1,592, and instructions were then given for the insertion of columns to show a separate charge for water-tax where made, and for bracketing the columns where consolidated assessments existed.

G. O., dated 21st February 1872, No. 487, Public Works Department.
Board's Proceedings, dated 17th June 1872, No. 1,018.
G. O., dated 25th July 1872, No. 1,766, Public Works Department.
Board's Procs., 11th Dec. 1872, No. 2,365.

3. The Board had already directed the insertion of a separate column for separate charge under the head of Water-tax where such was really made; and as the Godavery and Kistna were the only districts among those to which the forms applied, in which there were non-consolidated wet assessments, no further instructions were issued. It was assumed that this fact was sufficiently notorious, and that the column headed "total" would answer all the purposes of the bracketed columns.

Board's Procs., 16th July 1873, No. 1,305.
Board's Procs., 23rd July 1873, No. 1,369.

4. The Board did not clearly understand that what the Chief Engineer wanted was the charges for land and water separately where they had been separately determined. They did not anticipate, and until they had seen the recent notes of the Chief Engineer, would not have imagined that he wanted to reduce averages of water-tax to area, with a view of ascertaining on the one hand the sufficiency of the irrigation, and, on the other, the extent of remissions granted. They thought that what was wanted was, as originally appeared, the wet revenue in the lump only.

5. It is further evident that for the purpose to which the Chief Engineer has turned the statements, the bracketing of the columns would not have sufficed without separate specification of area, and had this been ordered the Board might have gathered that something more than revenue in the lump was wanted. Thus, both where consolidated and non-consolidated assessments exist, the columns headed Water-tax include water-tax on land ordinarily dry, the area of which is lumped with that of the ordinarily wet area in the previous column; and unless the areas were there separated the averages would be, as those of the Chief Engineer are, entirely fallacious.

6. The gist of the matter therefore is, that the returns have been converted to a purpose entirely different to that for which they were designed. Originally intended to show wet revenue in the total, they have been adopted as the basis of the capital and revenue accounts, and attempts have been made to use them for the guidance of irrigation officers in the management of the works. The assessments in this Presidency are extremely complicated, and to exhibit them in such a way as to admit of deductions such as the Chief Engineer has made from the present statements, would require a form enormously complex. Government

lands assessed with consolidated wet rates, not liable, and liable to extra charge for water; Government lands assessed dry, but charged with varying water-rates for wet and dry crops; Inam lands paying quit-rent, but not water-rate of any kind; paying quit-rent, and wet and dry crop water-rates; paying no quit-rent, but paying varying water-rates, and paying neither quit-rent nor water-rates; and Zemindari lands, paying compounded water-rates; paying acreable water-rates, and appropriate to wet and dry crop, respectively; and paying no water-rates; would have to be distinguished, and under each of these classes, some twenty in number, would have to be given, separately, for first and second crop, the area, the assessment or quit-rent, the rate and amount of water-tax where such is levied, the remission, and the final charge. The statement would extend to some 250 columns. The Board, of course, do not consider that the labor of making such statements would be repaid by their practical utility; but merely want to show that the matter is not so simple as the Public Works officers imagine, and that it is dangerous for those who do not understand the figures to reason from them.

7. The many different kinds of charges, and the fact that there are different rates of water-tax, explain the Board's remark that the average water-rate deduced from the statements submitted is determined by many other causes than sufficiency or insufficiency of irrigation. If the nature and amount of remission granted is required, then particulars can be given; but the amount and causes cannot be deduced from the statements, as the Chief Engineer attempted to do. The essentials of the information which he sought to draw from them could have been procured, if asked for, in a much more convenient shape.

8. The statements which have been submitted through the Board's Office have been checked and examined so far as is possible by means of those furnished with the settlement reports. But to say that the Board have not examined them in full detail, or are unable to explain obscurities in them is to say that they have not in their office the village accounts from which the statements are compiled.

9. The Board offer the following remarks with reference to the Chief Engineer's memoranda of the 9th April, 19th May, and 1st June 1875:—

(*a.*) With regard to the apparent increase in water-tax in the Kistna register for fasli 1283, it has already been explained that in the earlier statements, the portion of the non-consolidated assessment which represents water-tax was not separately given. And here the Board remark that even the terms of G. O., 18th June 1873, No. 1,592, are not very clear. The portion which represents charge for water is not a "separate charge," though it enters at a fixed rate into all the wet assessments; and where it has been determined in this way, the combined charge on the land is treated in every respect as a consolidated assessment. It was first made a separate charge, in so far that a ryot was allowed the option of relinquishing the water, by the revised water-rate rules which came into force in fasli 1283; and there was full excuse for misapprehension of what was wanted.

(*b.*) With reference to paragraph 2 of the second memorandum, the Board observe that the order to review the statements in detail was given after the last of them was submitted; that full explanation as to the Chief Engineer's difficulties with regard to the Godavery statements has been furnished; that the statements for the Madras Water Works Project to which he objects did not pass through the Board's Office, and that the supposed discrepancy therein was shown to be non-existent: and that the statements of irrigation and rain-fall were furnished by the Superintending Engineers and did not pass through the Board's Office at all. The objections made to the Cauvery statement, so far as they did not rest on misunderstanding of what it meant, were merely that the channels were not discriminated in a particular way, for which no desire had previously been expressed.

5th April 1875, No. 897.

Procs., dated 9th August 1875, No. 2,221.

Procs., dated 29th September 1874, No. 2,805.

10. In short the misconceptions and the unsatisfying character of the statements which have been furnished are due in great part to the indefiniteness of the instructions given, and to the absence of clear declaration of the purposes for which the returns were wanted. The Board believed that the aggregate wet revenue due to each great work was wanted, and that the principles on which such wet revenue was to be computed were those approved in G.O., dated 25th July 1872, No. 1,766. The Chief Engineer wishes to make the statements of use to officers regulating the irrigation, and therefore wants much detail; and his remarks are pervaded throughout by the idea that the charge for water only, or so much of the assessment as can be taken to represent it, is the revenue due to irrigation. The complication of the matter, the absence of instructions for uniform procedure, and the indefinite character of the requests made to them for information, amply explain the apparently discrepant statements furnished by Collectors to the Superintending Engineers.

11. The Board have again and again pointed out that the division of the consolidated wet rates into land-tax and water-tax is entirely impracticable, and that the return from irrigation must be computed on different principles. Their reasoning and conclusions have, on former occasions, been approved by Government and by Colonel Oakes when Chief Engineer for Irrigation,* and all that has been done in the matter of preparing statements of irrigation revenue has been done with reference to the instructions so issued; except that, for the purposes of capital and revenue accounts which are to show the return or profit from irrigation, columns have been added to give the area and assessment of dry lands already occupied but brought under irrigation in each year (Board's Proceedings, No. 1,349, dated 30th July 1873), as such assessment is clearly not part of the profit. It is rightly shown in statements purporting to give revenue from lands irrigated.

Board's Procs., 7th April 1868, No. 2,589.
Do., 17th June 1872, „ 1,018.
Do., 30th July 1873, „ 1,439.
Do., 8th Aug. „ „ 1,527.
Do., 19th June 1875, „ 1,698.

* Board's Procs., 11th Dec. 1872, No. 2,365.

12. The principles so laid down by the Board for capital and revenue were briefly, that the whole consolidated assessment of wet land, the extra charge for water in the case of occupied dry land brought under irrigation, the assessment and extra charge for water in the case of dry land, which was waste up to the time that irrigation was furnished, the charge for second crop on single crop land, and all water-rate for Inams and Zemindaries, constitute revenue to be considered in computing profit due to irrigation; and for the preparation of capital and revenue accounts, the average wet revenue ascertained as above, prior to the construction of the work, must be deducted from the wet revenue of each subsequent year similarly ascertained. The determination of a "standard revenue" will be the deduction of an average for such a period before the construction of the work as would get rid of fluctuations of season. Five years would, in the Board's opinion, be sufficient for such purpose.

13. The only objection to the Board's method is that in crediting to the irrigation project the land assessment in the case of dry waste brought under irrigation, the extension of cultivation which would have taken place owing to increase of population and wealth is included. But this is a very vague and uncertain element, and not to credit this item to the projects would, in the case of vast tracts of land

which but for irrigation could never have been brought under the plough, be obviously wrong. It might be possible to apply a rough correction for extension due to increased population, &c.; but in a matter which is so largely one of conjecture, and in which there are so many disturbing elements, such as surveys and re-settlements and alterations of demand on the land, the Board are of opinion that the consideration may be disregarded; and that the system which has been adopted and approved will give a much nearer approximation to the true return than a division of consolidated wet assessments, which must be entirely arbitrary, and which, as assuming the land to be applied to purposes to which it never has been applied, must be unsound in principle.

14. The Board, herewith, submit to Government a file of proceedings showing the information which, with much trouble, has been collected and communicated to the Controller of Public Works Accounts for the purpose of the capital and revenue accounts of irrigation. In many cases it will be impossible to complete it as desired by Government, in consequence of the loss of village accounts and destruction of records, and it is very doubtful whether "standard revenues" can be obtained without a free use of mere estimate. The capital and revenue accounts as regards the past must always be unsatisfactory, and it seems to the Board of greater importance to lay down precise rules for the preparation of accounts as to the future, and to decide once for all, and finally, the principles on which the return is to be computed than to attempt to give delusive precision to the accounts for past years.

15. As Government have ordered the appointment of C. Kalyanasundara Chetty as Special Deputy Collector for the compilation of the required statements, the Board of course hold his services at the disposal of Government from any date they may name; but they feel bound to say that, in their opinion, the appointment of a special officer is not likely to further the object in view, and that the officer selected, though undoubtedly possessing superior intelligence and ability, is wanting in the acquaintance with revenue records and with the details of the revenue system in Madras, which are especially requisite for the work. Local details so vary, and local records are of such importance in the matter, that the work can undoubtedly be best done by the local officers and establishments. The Board request that it may be distinctly declared whether the special officer is to work under them or under the Chief Engineer for Irrigation, and to whom the responsibility is, in future, to attach.

16. In paragraph 6 of the Government order, Government state the requirements of the irrigation officers for the management of the works for which capital and revenue accounts are to be prepared, *viz.*, for a series of years, the area of cultivation and the revenue, remissions, &c., under particular canals, channels, tanks, &c., and in the case of large tanks for particular villages. The Board observe that the channel statements give the area charged, not that cultivated; and to show the revenue and remissions, separate statements will be required, since, apparently, gross revenue is meant, and since the statements as now compiled give, as the Board have explained, no information as to remissions. If by revenue is meant collections, it cannot be given, as the accounts do not distinguish between collections on wet and dry land. The Board

Board's Proceedings, dated 16th July 1873, No. 1,305.

can easily frame forms to show the gross and net revenue demand giving particulars of irrigation by lift, &c., and classifying the remissions; but the necessity of furnishing all these particulars to the irrigation officers, and of imposing on the Collectors, whose establishments are already overworked, the labor of drawing up separate settlement reports for each work, is not apparent. It does not seem of importance to irrigation officers to know more than the remissions for excess or deficiency of water. But before anything is done toward framing statements giving information, and prescribing reports on the results of each year such as now for the first time asked for, it will be necessary that the way in which the channels are to be classfied under each work shall be finally settled by the irrigation officers. Every change and fresh requirement made during the progress of the compilations of these statements causes great additional labor, as it necessitates a fresh examination of the accounts of, in some cases, thousands of villages. The Board beg that it may be settled once for all exactly what is wanted, and that there be subsequently no departure from the procedure laid down.

17. In conclusion, the Board feel bound to bring to the notice of Government the tone which Colonel Mullins has thought fit to adopt towards the Board in his memoranda, especially in paragraphs 4 and 5 of that dated 19th May 1875, No. 545. Had this document come before the Board as a direct communication from Colonel Mullins, they would have been able to estimate it at its true value and to have characterized the language in which it is couched in a suitable manner; but the Government having embodied it in their Proceedings, and adopted it as a text for orders communicated to the Board for information and guidance, it only remains for the Board respectfully to request a re-perusal and re-consideration of the memoranda in question, with the confident hope that the Government will not refuse such measure of redress as may appear to them proper on the occasion.

(True Extract.)

(Signed) H. E. STOKES,
Acting Secretary.

TRANSFERRED to the Public Works Department.

(Signed) LORNE A. CAMPBELL,
Under Secretary.

No. 343. Proceedings of the Board of Revenue, dated 17th September 1875, No. 2,600.

Proceedings of the Madras Government in the Public Works Department, dated 7th July 1875, No. 1,932.

ABSTRACT.—*Irrigation work for which separate revenue and capital accounts are kept for fasli* 1283 (1873-74).—Passing orders on memorandum by the Officiating Chief Engineer on statement transmitted by the Board of Revenue showing the —.

Read also G.O., Revenue Department, dated 24th July 1875, No. 1,557, communicating the foregoing order to the Board.

COMMUNICATED to the Collector of North Arcot.

2. Before giving instructions for the revision of this and similar statements from other districts, the Board will await the orders of Government on their Proceedings, dated 7th September 1875, No. 2,502.

3. It is essential that the classification of channels and tanks should be made by officers of the Public Works Department before the re-compilation of the statements is undertaken.

4. With reference to the Chief Engineer's remark, that the statements for all years should be prepared as far as possible on the same principle as the statement under notice, the Board beg to refer Government to their Proceedings, dated 17th May 1875, No. 1,333, and to inquire whether statements in this form should be called for for past years, and if so for how many. The Board apprehend that if it be possible at all to prepare such statements it must be long before they can be compiled for past years in the detail now required, and they are of opinion that for capital and revenue accounts the information contained in the statements furnished to the Controller of Public Works Accounts is sufficient.

(True Extract.)

(Signed) H. E. STOKES,
Acting Secretary.

No. 344. ORDER THEREON, 15th November 1875, No. 3,262.

IRRIGATION, No. 42.

HIS EXCELLENCY the Governor in Council is of opinion that no good is likely to result from further written discussion of the subject of irrigation returns between the Board of Revenue and the Chief Engineer for Irrigation, and he has accordingly endorsed the letter from the Government of India, announcing their acceptance of Mr. Wilson as the Revenue Officer appointed to co-operate in the work of preparing capital and revenue returns of irrigation, with instructions that he shall confer personally, as to the manner of starting them, with the Chief Engineer for Irrigation and the Controller or his Deputy at the Revenue Board Office. The Chief Engineer for Irrigation will accordingly be prepared to place his views fully before the conference in question.

2. The Government much regret that the memoranda by the Chief Engineer for Irrigation referred to in the concluding paragraph of the Board's Proceedings should in their present form have reached the Board. That this occurred has been owing to a complete misapprehension of the wishes of the Government, who greatly disapproved the tone of the paragraphs to which the Board have very justly taken exception. The special attention of the Chief Engineer for Irrigation has been called to the impropriety of the language used.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 345. Read the following letter from Colonel F. J. MOBERLY, R.E., Superintending Engineer, Chingleput, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Guindy, 8th October 1875, No. 2,864 :—

Providing tin sheets to the record-stands now liable to injury by white-ants.

I HAVE the honor to request that you will provide me with funds to the extent of Rupees 65 under the head " Provincial, " " Civil Buildings, " Original Works, to enable me to carry out certain urgent work to the Collector's Office at Sydapett, specified in the margin.

No. 346. ORDER THEREON, 15th November 1875, No. 3,263.

CIVIL WORKS, No. 25.

THE Superintending Engineer will carry out the work in anticipation of an allotment at a later date.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 347. Read the following letter from Colonel F. J. MOBERLY, R.E., Superintending Engineer, Chingleput, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Guindy, 31st August 1875, No. 2,172 :—

I HAVE the honor to report that the General Superintendent of Public Works Stores and Workshops has sent in a bill, Rupees 253-10-0, for the bell for the Roman Catholic Church at Poonamallee, sanctioned in G.O., No. 96, dated 13th January 1875. I have no funds to pay for this at my disposal under " Civil Buildings " " New Works, Provincial."

2. The estimate sanctioned in the above Government Order does not include the fixing of the bell, for which a separate estimate, Rupees 68, has been sanctioned. I request an allotment of Rupees 322 to meet these charges. Till funds are granted the General Superintendent's bill must remain " outstanding ; " he ought to have waited till the order for its execution was sent by me.

No. 348. ORDER THEREON, 15th November 1875, No. 3,264.

CIVIL WORKS, No. 25-A.

FUNDS cannot be allotted for the work till the 4th quarter of the year, when savings available for transfer are reported. The General Superintendent of Workshops should not have undertaken the supply of the bell till called on for it.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following :—

No. 349. From the Superintending Engineer, Tanjore, dated 14th October 1875, No. 1,978.

No. 350. ORDER THEREON, 15th November 1875, No. 3,265.

ESTABLISHMENT, No. 22.

THE District Engineer will be informed that the services of Mr. J. Hannan will be placed at his disposal on his return from furlough, which is expected by the middle of November. And further arrangements to complete the strength of establishment fixed for the Tanjore District will be made on arrival of the young Engineers from Cooper's Hill expected shortly.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 351. Read the following :—

From District Engineer, Bangalore, dated 2nd November 1875, No. 124.

No. 352. ORDER THEREON, 15th November 1875, No. 3,266.

ESTABLISHMENT, No. 23.

THE following transfers are ordered at the public expense :—

1. Mr. Sub-Conductor J. Lalor, Supervisor, 2nd Grade, from Malabar to Bangalore.

2. Captain H. Bailey, Executive Engineer, 4th Grade, from Salem to Malabar.

3. Mr. R. J. Lowry, Executive Engineer, 4th Grade, from Chingleput to Salem.

4. Mr. W. F. Donaghue, Sub-Engineer, 3rd Grade, is permanently posted to Chingleput, *vice* Mr. Lowry.

5. Lieutenant and Deputy Assistant Commissary T. Smither, Assistant Engineer, 1st Grade, from North Arcot to Chingleput, *vice* Captain R. J. Taylor, whose services have been placed at the disposal of the Military Department.

6. Captain R. J. Morris, R.E., Executive Engineer, 4th Grade, to North Arcot, on relief of the charge of the Trichinopoly District by Major Vertue.

Mr. W. F. Donaghue will relieve Mr. R. J. Lowry without delay.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 353. Read the following letter from Lieutenant-Colonel J. H. M.. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 10th November 1875, No. 610 :—

ADVERTING to the Proceedings of Government, No. 3,507, dated 14th December 1874, I have the honor to submit, for the sanction of Government, a revised estimate amounting to Rupees 2,637, of the cost of checking and practising instruments required for the use of the Traffic Department of the Madras Railway.

2. In forwarding the estimate the Agent and Manager writes as follows :—

" I learn from the Chief Engineer that the Telegraph Engineer has brought to notice that the cost of the four Siemen's ink writers sent out from England is Rupees 1,229-11-4, whereas Mr. Winter's estimate for the same, founded on a price list given him by Messrs. Warden and Co., is only Rupees 656."

3. I recommend that, under the circumstances, sanction be accorded to the necessary expenditure, *viz.*, Rupees 2,637. This will cancel the sanction conveyed in the Order of Government, No. 3,507, dated 14th December 1874, to the original estimate, amounting to Rupees 2,063.

4. Funds are available from Schedule C " Minor Works" in the Budget Estimate for 1875-76, and the sanction will lapse on the 31st December 1875.

No. 354. ORDER THEREON, 15th November 1875, No. 3,267.

RAILWAY, No. 45.

THE revised estimate, amounting to Rupees 2,637, is sanctioned under the explanation afforded. The sanction accorded in G.O., No. 3,507, dated 14th December 1874, is cancelled.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 355. Read the following letter from Captain L. CONWAY-GORDON, R.E., Controller of Public Works Accounts, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 18th October 1875, No. 107 W. :—

WITH reference to G.O., No. 2,398, dated 20th August 1875, I have the honor to observe that the arrangement under which in the Kistna District certain boats (forming part of the floating plant of the Kistna Delta Works) are omitted from the Register of Tools and Plant, whilst the rents realized on account of these boats are credited to a Special Fund under Deposits, does not appear to me to be altogether regular from an accounts point of view, and I have therefore the honor to suggest that the officer concerned be directed to transfer to the credit of Irrigation Revenue the balances now at credit of the Range Boat Fund, and to bring the boats in question to the Register of Tools and Plant.

2. I may mention that there will be no difficulty in making, in communication with the District Engineer, Kistna, such arrangements as will admit of watching these transactions as carefully as at present, with a view to the occasional re-adjustment of the rates of boat hire.

No. 356. ORDER THEREON, 15th November 1875, No. 3,268.

IRRIGATION, No. 43.
Account.

RECORDED with reference to Proceedings, Madras Government, No. 3,036, dated 28th October 1875, in which the question raised has been disposed of.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 357. Read the following endorsement of the Consulting Engineer for Railways, dated Madras, 11th November 1875, No. 611 :—

MADRAS RAILWAY.

Minutes of a Meeting held at the Agent and Manager's Office, Royapooram Terminus, on Tuesday the 26*th October* 1875.

PRESENT.

Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways.

Mr. R. G. MACDONALD, Examiner of Railway Accounts.

Mr. BERESFORD ANDERSON, Chief Engineer, Madras Railway.

Mr. H. E. CHURCH, Traffic Manager, do.

Mr. F. CHURCH, Chief Auditor, do.

Mr. R. B. ELWIN, Agent and Manager, do.

1. A statement of the claims paid during the month of September 1875 was submitted, and payment was sanctioned as under :—

	RS.	A.	P.
Amount paid on account of claims during the month of September 1875	261	9	0
Deduct amount received to the credit of this account	133	0	3
	128	8	9

2. Bills amounting to Rupees 59,458-7-11 for stores purchased in the month of September 1875 were submitted for examination and were passed for payment.

3. The Agent and Manager explained the circumstances under which on two occasions, *viz*, on the 5th of May and the 14th of July last, the cash-bag containing the collections at the Jollarpett Station had not reached the Cashier's Office at Madras, although it was alleged that on each occasion the bag had been duly placed in the train cash-chest at Jollarpett. Mr. Elwin stated that strong suspicion attached to one of the officials at the Jollarpett Station, but that in the course of the investigation that was made it transpired that it was possible to abstract a cash-bag from a travelling cash-chest without unlocking the latter, and that this had actually been done

by a Mr. Lowe an Inspector of Police stationed at Tripatore. It was stated that the Inspector-General of Police had, at the request of the Agent and Manager, allowed Mr. Lowe to come down to Madras to explain to the officers of the Company how he managed to take a bag out of a cash-chest, and that he had satisfied them that it was possible to do so, though with some difficulty. Steps were at once taken to remedy the defect in the cash-chests, but it was considered useless under the circumstances to take criminal proceedings in the case referred to.

4. The Committee concurred in the policy of this, and authorized, subject to the approval of Government, that the amount of money lost, Rupees 226-12-6, should be charged off in the accounts to "Unclassified Expenditure—Loss on Stores," Abstract D.

5. A payment of Rupees 50, which had been made by the Agent and Manager to Mr. Lowe for his expenses, and in recognition of the service he had rendered the Company, was also approved subject to the sanction of Government.

(Signed) J. H. M. SHAW-STEWART, Lieut.-Colonel, R.E.,
Consulting Engineer for Railways.

(Signed) R. B. ELWIN,
Agent and Manager, Madras Railway.

SUBMITTED for the approval of Government.

(Signed) J. H. M. SHAW-STEWART, Lieut.-Colonel, R.E.,
Consulting Engineer for Railways.

No. 358. ORDER THEREON, 15th November 1875, No. 3,269.

RAILWAY, No. 46.

APPROVED.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following papers :—

No. 359.	From the District Engineer, Presidency, dated 17th Sept. 1875, No. 2,666.							
No. 360.	From	do.,	Tinnevelly,	,,	22nd	,,	,,	,, 77.
No. 361.	From	do.,	South Arcot,	,,	27th Sept.	,,	,,	143.
No. 362.	From	do.,	Bangalore,	,,	28th	,,	,,	,, 108.
No. 363.	From	do.,	Cuddapah,	,,	18th October	,,	,,	1,587.
No. 364.	From	do.,	Coimbatore,	,,	30th	,,	,,	,, 81.
No. 365.	From	do.,	Malabar,	,,	6th Nov.	,,	,,	118.
No. 366.	From	do.,	Presidency,	,,	9th	,,	,,	,, 3,464.
No. 367.	From	do.,	Bangalore,	,,	10th	,,	,,	,, 130.
No. 368.	From	do.,	do.,	,,	10th	,,	,,	,, 131.
No. 369.	From	do.,	Chingleput,	,,	11th	,,	,,	,, 3,352

No. 370. ORDER THEREON, 16th November 1875, No. 3,270.

ACCOUNT, No. 7.

THE following transfers are ordered :—

From			RS.	To	RS.
Presidency, Repairs, Military ...		...	1,000	Presidency, Minor New Works, Military.	*1,000
Do.,	do.	...	7,500	Chingleput, Repairs, Military ...	7,500
Bellary,	do.	...	500	Malabar, Minor New Works, Military...	*500
Do.,	do.	...	2,000	Bangalore, do. do. ...	*2,000
Do.,	do.	...	200	Tinnevelly, Repairs, Military ...	200

Provincial.

From				To	
Tanjore, Repairs, Civil Buildings		...	200	Bangalore, Repairs, Civil Buildings ...	200
Godavery, do.,	do.	...	700	Cuddapah, do., do. ...	700
Do., do.,	do.	...	500	South Arcot, do., do. ...	500
Do., do.,	do.	...	800	Coimbatore, do., do. ...	800
Do., do.,	do.	...	1,000	Malabar, do., do. ...	1,000

TOOLS AND PLANT.

Imperial.

From		To	
Vizagapatam	250	Bangalore	400
Godavery	150		
Total ...	400	Total ...	400

2. There being no balance under Repairs, Telegraphs, it has not been possible to allot the sum of Rupees 120 applied for by the District Engineer, Bangalore, for repairs to the Telegraph buildings at that station, but the District Engineer is authorized to proceed with the repairs in anticipation of savings.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 371. Read the following papers :—

From Major H. L. PRENDERGAST, R.E., Commandant of Sappers and Miners, to Major-General G. W. WALKER, R.E., Chief Engineer, Public Works Department, dated Bangalore, 13th October 1875, No. 818.

CORPORAL KNIGHT of the Sappers and Miners has made a request that he may be given employment in the Public Works Department, as he volunteered for service in India under Class B according to the printed notice to volunteers circulated at Chatham. There has been correspondence on this subject which you will find in G.O., Military Department, No. 1,513, of the 31st March 1875.

2. The Non-Commissioned Officers have been told in general that they cannot be employed in the Public Works Department without qualifying at the Civil Engi-

* Subject to the approval of the Government of India.

neering College, but the question has not been answered by authority regarding any one man.

3. I have the honor to request you will be so good as to let me know if Corporal Knight can be employed in the Public Works Department, now that he has served upwards of a year with the Sappers, in pursuance of paragraph 18 of the Notice to Volunteers.

4. I have only further to observe that there are several other Non-Commissioned Officers who volunteered for service in India in Class B.

No. 371-A. Endorsement of the Secretary to Government, Military Department, dated Fort St. George, 11th November 1875, No. 5,494.

From Brigadier-General R. C. STEWART, Adjutant-General, to Colonel A. C. SILVER, Secretary to Government, Military Department, dated Fort St. George, 10th November 1875, No. 552.

ADVERTING to the correspondence (herewith returned) referred to the Commander-in-Chief with your docket,* No. 5,378, dated 6th November 1875, I have the honor by order to inform you that His Excellency has no remark to offer respecting the employment in the Public Works Department of men of the Royal Engineers, beyond that it would appear that, under present rules, all candidates for that department are obliged to pass a successful examination in the Civil Engineering College.

* Public Works G.O., No. 3,140, dated 4th November 1875.

2. The correspondence alluded to by the Secretary to Government, Public Works Department, is embodied in Proceedings of Madras Government, No. 2,524, dated 27th May 1875, which was communicated to that department.

TRANSFERRED to the Public Works Department and the referred papers returned.

(Signed) A. C. SILVER, Colonel,
Secy. to Government, Mily D.

No. 372. ORDER THEREON, 16th November 1875, No. 3,271.

ESTABLISHMENT, No. 24.

THE "Notice to Volunteers" referred to in the above letter bears on the face of it evidence of its having been drawn up solely with reference to the Roorkee College and Bengal Presidency. Applications for appointments in the Public Works Department without passing through the Civil Engineering College should therefore be made, on account of Non-Commissioned Officers of Engineers of Class B, to the Government of India. Probably the best channel would be through the Commissioner of Mysore, whose Secretary in the Public Works Department has the opportunity of satisfying himself personally as to the qualifications of the men, and might be glad to employ them.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 373. Read the following letter from Captain ROSS THOMPSON, R.E., District Engineer, Presidency, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 10th November 1875, No. 3,489 :—

IN G.O., No. 2,628, of 13th September 1875, paragraph 2, I was directed to request the Agent of the P. & O. Company to place at the disposal of the Madras Harbour Superintendent certain coal sheds which the Company had been permitted to erect on Government land under the stipulation of removing them at any time the Government may require, *vide* G.O., No. 858, of 24th September 1850.

2. The Agent of the P. & O. Company in a letter, dated 19th October 1875, requests "to be informed whether the cost of pulling down or demolishing the buildings and of properly sorting and separating the materials so as to be saleable is to be borne by Her Majesty's Government or to be charged to the P. & O. Company." I have the honor to request that I may be instructed how to reply to this question.

No. 374. ORDER THEREON, 16th November 1875, No. 3,272.

CIVIL WORKS, No. 26.

THE P. & O. Company having been allowed to build the sheds in question "under the stipulation of removing them at any time the Government may require," their Agent will defray all necessary expenses attendant on such removal, which should be expedited. His reference appears to have been made on insufficient grounds.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 375. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 10th November 1875, No. 609 :—

I HAVE the honor to report, for the information of Government, that I have returned from inspecting the Southern Extension of the South Indian Railway. The progress made in completing the construction of the line between Madura and Tuticorin continues to be as satisfactory as when last reported on by Major Smith.

2. At the time of my inspection there were only three bridges unfinished : the bridge over the Vypar at Satoor, consisting of twelve 70-feet openings ; the Gunnecherry bridge, consisting of five 70-feet openings ; and an intermediate bridge over a small stream, consisting of five 50-feet openings. I have subsequently learnt that the last pair of girders has been successfully placed in position at the Satoor bridge ; and, although the work at the Gunnecherry bridge was seriously impeded by a heavy fresh

in the river, I have every reason to expect that the whole of the girders are now in position. The completion of the latter bridge will allow the girders for the five 50-feet openings to be brought up; and I confidently expect that an engine will be able to run through from Madura to Tuticorin by the 15th instant, the date named by Major Smith.

3. All other necessary work along the line is making fair progress. The ballasting of some parts has been unavoidably delayed until the completion of the bridges; but there will soon be five ballast trains at work, and the line will probably be ready for the passage of trains by the end of this month. All the watering arrangements will probably be in working order by that time.

4. The Tinnevelly branch is still in need of additional ballast in several places, but with this exception it is now ready for the passage of trains. The bridge over the Sittar, consisting of ten 70-feet openings, was finished upon the 1st instant.

5. The station buildings are well advanced, but it is more than doubtful whether all the goods sheds will be ready by the end of this month. The passenger sheds will all be finished.

6. The necessity for additional waterway has been proved by some recent heavy floods, especially near the Maniachee and Tiroomungalum stations. Proposals with respect to this will be made by the Chief Engineer.

7. I have already addressed you demi-officially with regard to the proposed temporary extension of the line at Tuticorin between the Railway station and the jetty, and I understand that Government have approved of the suggestion to dispense with the proposed extension.

8. The erection of the telegraph wire upon permanent posts is now complete, and the mile boards have been placed upon them as far south as Satoor. The numbering of the telegraph posts is also in progress; but this work takes time, and it is to be regretted that it was not undertaken sooner. The Chief Engineer has however promised that additional men shall be employed upon this important duty, and that it shall be taken in hand at different points along the line.

9. The want of training among the watchmen continues to be the week point upon the line. Owing to the pressure of work in other directions, this want is to some extent unavoidable; and I trust that the arrangements made by the Chief Engineer will result in the line being guarded by an efficient body of watchmen when the time comes to open it for traffic.

10. I have no doubt whatever that by the 10th December, the date named for the journey of His Royal Highness the Prince of Wales from Madura to Tuticorin, the line between those places will be in a fit state for the Royal Special Train to run over it, and for passenger trains generally, if it should be determined to declare it open to the public from that day. This point will depend in great measure upon the amount of rolling stock then available. I understand it to be the intention of Government that His Royal Highness shall travel between Madura and Tuticorin during the day; and feel it my duty to urge that, if possible, the journey of His Royal Highness between Trichinopoly and Madura should also be performed during daylight. I am

not of opinion that any positive risk would be entailed by running a train between Trichinopoly and Madura during the night, but the newness of the line, its unfenced condition, the uncertainty of the weather, and the comparative inexperience of the watchmen, make it of importance that His Royal Highness' journey should, if possible, be performed during daylight.

11. I trust that the progress which has been made upon the unopened part of the Southern Extension will be satisfactory to Government. The work has latterly been performed at high pressure, and all engaged upon it have been subjected to constant exposure and to much fatiguing drudgery. The officers employed upon it have been Mr. White, Deputy Chief Engineer, and Messrs. Spalding, Rice, Partridge, Nicholas, and Dredge, Assistant Engineers. The satisfactory result which I am able to report could have been secured only by great exertion and untiring energy on the part of those gentlemen.

No. 376. ORDER THEREON, 16th November 1875, No. 3,273.

RAILWAY, No. 45.

HIS EXCELLENCY the Governor in Council is glad to observe that satisfactory progress continues to be made on the Southern Extension of the South Indian Railway.

2. Proposals for remedying the insufficient waterway which has been allowed at certain places will be awaited. No time should be lost in increasing the waterway where necessary. (Paragraph 6.)

3. The proposed temporary extension of the line at Tuticorin between the Railway station and the jetty may be dispensed with. (Paragraph 7.)

4. It is of great importance that the telegraph posts should be numbered throughout with the least practicable delay, and it is satisfactory to learn that the Chief Engineer of the Company has arranged for the work being completed expeditiously. (Paragraph 8.)

5. The necessity for having the watchmen trained in anticipation of their services being required has already been forcibly impressed on the Railway authorities, and His Excellency the Governor is satisfied that Mr. Logan has taken the matter up, and is arranging that the system of instruction adopted shall be vigorously carried out. (Paragraph 9.)

6. It has already been decided in separate Proceedings that the use of the line by His Royal Highness the Prince of Wales is not to be considered as throwing it open to public traffic. (Paragraph 10.)

7. Arrangements will be made, if possible, to meet the Consulting Engineer's recommendation that the journey from Trichinopoly to Madura shall be performed by daylight.

8. His Excellency the Governor in Council notices with pleasure the laudable exertions of the officers under the Chief Engineer, who have worked with great energy under trying circumstances.

Paragraph 11.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 377. Read the following endorsement of the Controller of Public Works Accounts, dated 11th October 1875 :—

REPORT ON THE APPROPRIATION ACCOUNTS FOR 1874-75.

Buildings and Roads Branch—Provincial Services.—The Original Budget Grant of Rupees 10,50,000 was supplemented during the year to the extent of Rs. 1,41,158, making the total final grant at end of year Rupees 11,91,158, against which the debits have amounted to Rupees 12,84,669, or Rupees 93,511 in excess of the final grant. This excess chiefly occurs against the following heads :—

	RS.
Repairs	10,902
Tools and Plant	36,502
Increase of Stock	47,259

the heads Repairs and Tools and Plant will be noticed hereafter. When writing the report for 1873-74 the Controller anticipated large issues from the balance of stock in the Public Works Store Department at the close of that year without a corresponding receipt of fresh stock, so that the closing balance would be a saving on the Budget grant of 1874-75, but these results have not been attained to such a degree as was anticipated in connection with the Store Department, while, on the other hand, the exces of balance in other Public Works divisions or ranges has brought about a net charge instead of a saving on the budget grant of this year.

	RS.	A.	P.
Increase in balance of Stock with Public Works Ranges classed as Provincial ...	53,724	10	6
Less—			
Decrease in balance with the Store Department ...	6,466	0	6
Net Increase...	47,258	10	0

2. The above-mentioned outlay of Rupees 12,84,669 does not include any portion of that incurred from the grant-in-aid of Rupees 12,00,000 from Provincial to Local Funds, because in this Presidency no arrangements have as yet been made for separating the expenditure from the Provincial grant-in-aid from the expenditure of Local Funds proper as explained in the letter from this office to the Accountant-General, Public Works Department, No. 40-A, dated 21st August 1875. The amount of grant however has been added to Part I. in which the total outlay from Provincial Funds is shown to have been Rupees 24,84,669.

3. *Original Works.*—The following table shows the differences between grant and outlay.

—	Grant.	Outlay.	Outlay.	
			More.	Less.
	RS.	RS.	RS.	RS.
Civil Buildings	5,94,240	5,95,698	1,458	...
Communications	1,62,588	1,66,258	3,670	...
Miscellaneous Public Improvements	21,091	9,771	...	11,320
	7,77,919	7,71,727	5,128	11,320
	Net short outlay ... 6,192			

This seems to be a fair result compared with those exhibited in the reports for the two previous years.

4. The differences resulting in the net saving of Rupees 6,192 are brought out in the following table comparing the grant with the outlay in each district :—

District.	Civil Buildings.		Communications.		Miscellaneous Public Improvements.	
	Grant.	Outlay.	Grant.	Outlay.	Grant.	Outlay.
	RS.	RS.	RS.	RS.	RS.	RS.
Ganjam	16,615	16,261	10,000	9,388	...	464
Vizagapatam ...	17,111	17,329	33,705	32,534	...	99
Godavery	5,021	4,457	...	...	...	...
Kistna	16,065	18,645	...	...	...	...
Nellore	41,638	42,473	60,900	67,188	...	...
Cuddapah	30,699	38,902	...	...	...	...
Kurnool	18,161	16,087	...	...	...	...
Bellary	24,225	23,465	...	...	...	...
Presidency	1,34,886	1,34,724	...	...	2,343	173
Chingleput	29,826	30,780	...	...	...	192
North Arcot ...	38,473	42,064	...	...	...	...
South Arcot ...	19,035	17,168	...	2,500	...	...
Salem	26,754	26,717	...	624	...	...
Bangalore	500	1,197	...	...	...	...
Tanjore	22,638	21,887	...	...	306	304
Trichinopoly ...	44,897	44,733	...	...	5,000	...
Nilgiri	6,364	5,718	43,780	49,561	720	1,148
Coimbatore... ...	8,552	8,729	9,200	9,014	...	...
Malabar	13,375	10,680	3	49	7,719	1,918
Wynaad	9,645	8,754	...	...	...	...
South Canara ...	22,991	21,273	...	...	...	...
Madura	32,262	32,230	5,000	400	5,000	3,940
Tinnevelly	11,651	11,428	...	...	...	1,879
Unallotted portion of grant	2,856	...	...	...	...	...
Total ...	5,94,240	5,95,698	1,62,588	1,66,258	21,091	9,771

5. From the statement of completed works which accompanies the Appropriation Accounts it will be seen that thirty-six works were completed during the year 1874-75 at a total outlay of Rupees 3,57,097 from the commencement of operations.

6. *Repairs.*—The following table shows the differences between grant and outlay under this head :—

—	Grant.	Outlay.	Outlay. More.	Outlay. Less.
	RS.	RS.	RS.	RS.
Civil Buildings	1,42,578	1,53,904	11,326	...
Communications	37,709	32,353	...	5,356
Miscellaneous Public Improvements	13,946	18,878	4,932	...
	1,94,233	2,05,135	16,258	5,356
	Net excess outlay ...		10,902	

7. How this excess is brought about will be seen from the following table of grant and outlay in each district :—

Districts.	Civil Buildings. Grant.	Civil Buildings. Outlay.	Communications. Grant.	Communications. Outlay.	Miscellaneous Public Improvements. Grant.	Miscellaneous Public Improvements. Outlay.
	RS.	RS.	RS.	RS.	RS.	RS.
Ganjam	4,927	4,385	5,900	5,900	...	...
Vizagapatam ...	2,904	3,426	3,000	2,886	...	...
Godavery	5,305	4,257	...	1,368	5,365	5,203
Kistna	3,500	3,122	...	...	495	647
Nellore	3,191	3,354	...	...	10	9
Cuddapah	6,665	8,011	...	...	...	...
Kurnool	2,957	4,478	...	...	...	...
Bellary	3,900	5,111	3,790	3,801	...	...
Presidency	44,644	44,881	18,450	18,483	...	271
Chingleput	9,441	11,999	740	...	...	...
North Arcot ...	10,425	9,848	...	...	...	...
South Arcot ...	4,895	4,384	...	8,600	...	...
Salem	3,266	5,453	...	...	...	...
Bangalore	1,400	1,939	...	...	...	...
Tanjore	4,603	5,158	...	...	...	...
Trichinopoly ...	2,300	2,577	...	...	...	...
Nilgiri	3,008	2,928	4,069	5,693	1,076	1,253
Coimbatore ...	3,041	2,966	...	...	...	...
Malabar	6,937	7,730	...	...	1,000	6,137
Wynaad	728	560	...	...	...	...
South Canara ...	5,790	7,918	...	...	...	...
Madura	3,700	4,355	1,760	2,822	6,000	5,358
Tinnevelly	5,051	5,064	...	...	...	...
Total ...	1,42,578	1,53,904	37,709	32,353	13,946	18,878

8. The following may be taken as the items which chiefly form the excess of Rupees 10,900 above shown.

Under Civil Buildings.

	RS.	RS.
Cuddapah ...	1,346	
Kurnool ...	1,521	
Bellary ...	1,211	
Chingleput ...	2,558	
Salem ...	2,187	
South Canara	2,128	10,951
Under Communications.		
Godavery ...	1,368	
Nilgiri ...	1,600	2,968
Under Miscellaneous Public Improvements.		
Malabar ...		5,137
		19,056
Deduct recovery in excess of expenditure against South Arcot ...		8,600
		10,456

9. The minus entry of Rupees 8,600 shown in red ink in this portion of the report, and that of Rupees 2,500 under the section "Original Works," are made under the instructions contained in the Proceedings of the Board of Revenue, No. 1,635, dated 16th June 1875. These sums were charged in the accounts of 1872-73 as Provincial Service expenditure, as there was nothing then to show that the Provincial grants sanctioned for the works in question were to be considered in the light of grants-in-aid to Local Funds. As desired by the Board the items have been transferred in the accounts of 1874-75 to the debit of Local Funds expenditure.

10. *Establishment.*—Against a budget provision of Rupees 2,00,000 under this head the debit on actual charge has amounted to Rupees 2,05,070, which is the balance of the actual Public Works Establishment charges of the whole Presidency after setting off the debits against the other heads of service as directed in order of Government, No. 2,991 A, of the 20th October 1874. Taking the expenditure on Provincial Works and Repairs by Public Works Officers, which amounts to Rupees 8,91,019, the proportion which the establishment bears to works is 23 per cent.

11. The charges on account of the regular Public Works Establishment amounted to Rupees 20,64,203, which, according to the method of distribution observed in the accounts of this year, was debited to the following services:—

—		Establishment charges.	Works and Repairs by Public Works Officers.	Percentage of Establishment to Works.
		RS.	RS.	RS.
Irrigation.	Capital, Extraordinary ...	1,60,942	5,35,571	30
	Do. Ordinary ...	1,04,272	2,49,362	41·8
	Revenue Account ...	4,90,587	12,74,967	38·4
	Ordinary Agricultural Works ...	72,430	2,87,108	25·2
Military ...		1,46,350	5,60,252	26·1
Other Services ...		16,158	33,267	48·5
Local ...		8,68,394	34,95,716	24·8
Provincial ...		2,05,070	8,91,019	23
	Total ...	20,64,203	73,27,262	..

12. The foregoing table compares the establishment charges with the actual expenditure on works and repairs by Public Works Officers. From these results the percentage charge on account of establishment seems to be very high against the first three heads of the Irrigation Branch, and against Ordinary Public Works, Other Services ; but this is explained by the fact that the establishment charges against these services, besides bearing 25 per cent. on expenditure or grant whichever is the greatest, include other special charges, such as establishments for surveys, for the Chief Engineer for Irrigation, for the Conservancy of Irrigation Works, and for coal-boring operations. The total charges for establishment under all heads, inclusive of that under Civil Officers, amounted to Rupees 20,76,714, which was passed under the following heads :—

	RS.
I.—Direction	5,80,009
II.—Construction including cost of Conservancy Establishment, Rupees 1,02,187	13,99,069
III.—Accounts	97,636

and the same was disbursed on the following accounts—.

A.—Salaries	17,87,819
B.—Travelling Allowances	2,50,406
C.—Contingencies	38,489

The proportion which the cost of establishment bears to the afore-mentioned heads stands thus—.

Direction	27·9
Construction	67·4
Accounts	4·7
	100·

Salaries	86
Travelling Allowances	12
Contingencies	2
	100

14. The following table brings together in one view the cost of the establishment under the heads and sub-heads above noted :—

——	Salaries.	Travelling Allowances.	Contingencies.	Total.
	RS.	RS.	RS.	RS.
Direction	5,26,465	38,519	15,025	5,80,009
Construction	11,68,718	2,10,870	19,481	13,99,069
Accounts	92,636	1,017	3,983	97,636
Total ...	17,87,819	2,50,406	38,489	20,76,714

13. *Tools and Plant.*—Under this head the final grant was Rupees 19,006 while the charges have amounted to Rupees 55,508, showing an excess outlay of Rupees 36,502. Of this excess, Rupees 34,317 are traced to two items of Rupees 27,167 and

Rupees 7,150, the former is the debit raised in the accounts of the Presidency Workshop on account of increase of Capital, while the latter is the difference between the grant appropriated to the Presidency Store Department (Rupees 4,250), and the amount charged* against that provision on account of the boiler got out from England for the steamer *Fred and May*, Rupees (11,400).

* Under G. O., No. 577, dated 1st March 1875.

15. *Profit and Loss.*—The charges to this head consist of three items: 1*st*, Rs. 200, the value of lime kilns at Chagallu and Janampetta borne in the stock returns of the Ellore Range of the Godavery District; 2*nd*, Rupees 19-7-5, the difference between book value and the amount realized by the sale of stock articles in the Chittoor Range, both of which were adjusted in communication with the Controller under the authority conveyed in Order of Government, No. 243, dated 27th January 1875. The 3*rd* item Rupees 25-15-7, the value of cordage borne as stock in the Negapatam Range was adjusted to this head under the authority conveyed in G.O., No. 2,519, of the 5th September 1874.

16. *Receipts on Revenue.*—The Provincial Budget contains no estimate of revenue with which to compare the actuals credited in the annual accounts. The realizations of the year amounted to Rupees 51,836 compared with the following sums credited in the accounts of the previous years:—

	RS.
In 1871-72 ...	57,425
„ 1872-73 ...	60,953
„ 1873-74 ...	1,13,045

17. It will be seen from the previous year's (1873-74) report that the large sum credited in that year included certain special items of adjustments.

18. The following items are still held as "Objectionable" for want of estimates, &c.:—

Expenditure without Estimate.

		RS.
1.	Constructing a new Taluq Cutcherry and Subsidiary Jail at Cumbum ...	14,462
2.	For purchasing fittings for a fire engine constructed by Public Works Workshop for Government House at Guindy ...	514
3.	Repairing the roof of Tahsildar's Cutcherry at Salem ...	369
4.	Do. the District Munsif's Court-house at Darampury ...	207
5.	Ceiling the Record-room of the Cherikal Taluq Cutcherry at Cannanore ...	214
6.	Repairs to the roof of the Protestant Church at Cannanore ..	533

Expenditure without Grant.

7.	Constructing Dead-house at Nursapur ...	483
8.	Repairing the Head Assistant Collector's Cutcherry at Cumbum...	500
9.	Repairing Munsif's Court at Cumbum ...	260
10.	Do. Taluq Cutcherry at Nundikotkur ...	307
11.	Do. Sub-Magistrate's Cutcherry at Peapully ...	269
12.	Constructing a Duff's Cooking range at the Lunatic Asylum ...	710
13.	Roman Catholic Church at Mount ...	644
14.	Do do. at Poonamally ...	310
15.	For purchasing fittings for a fire engine constructed by Public Works Workshop for Government House at Guindy ...	514

		RS.
16.	Improving and repairing the Collector's Bungalow at Chittoor ...	4,498
17.	Repairing the Collector's Cutcherry at Salem	833
18.	Do. District Engineer's Office at Salem	308
19.	Do. the roof of Tahsildar's Cutcherry at Salem	369
20.	Do. the District Munsif's Court-house at Darampury ...	207
21.	Constructing the District Engineer's Office at Bangalore	726
22.	Constructing Police Guard-room and out-houses at Nannilam Taluq Cutcherry	295
23.	Repairing St. John's Church at Trichinopoly	362
24.	Ceiling the Record-room of the Cherikal Taluq Cutcherry ...	214
25.	Repairs to the roof of the Protestant Church at Cannanore ...	533
26.	Repairing and improving the Sea Custom Office at Keelaparay ...	300
27.	Do. the Sea Custom Office at Paumben	442
	Expenditure in excess of Estimate beyond prescribed limitation.	
28.	Constructing a 1st-class Cutcherry at Kanigherry	660
29.	Improvements to the new Coonoor Ghaut	1,250
30.	Sub-Magistrate's Cutcherry at Vythery	893
	Expenditure in excess of Grant beyond prescribed limitation.	
31.	Jeypore Ghaut works	1,114
32.	Constructing 1st-class Taluq Cutcherry at Bezwarah	1,016
33.	Do. Taluq Cutcherry at Atmakuru	559
34.	Do. Sub-Collector's Cutcherry at Ongole	1,609
35.	Do. at 1st-class Cutcherry at Kanigherry...	1,554
36.	Washing walls and floors of the several buildings, &c., in Lying-in Hospital	534
37.	Lady Canning's Seat Road	1,880
38.	Kotegherry Ghaut road	6,207
39.	Improvements to the new Coonoor Ghaut	1,251
40.	Maintenance of Goodalore Ghaut	900
41.	Constructing Taluq Cutcherry at Periacolum	836

19. The only item calling for remark is No. 1, the bulk of the expenditure on which was incurred in 1869-70. The work has apparently since been stopped owing to the abandonment of the site originally fixed upon.

(Signed) L. CONWAY-GORDON, Captain, R.E.,
Controller of Public Works Accounts.

FORWARDED to the Secretary to Government, Public Works Department, for the information of Government.

(Signed) L. CONWAY-GORDON, Captain, R.E.,
Controller of Public Works Accounts.

Nos. 378 & 379. ORDER THEREON, 16th November 1875, No. 3,274.

ACCOUNT, No. 8.

IN his Note above recorded, the Controller reviews the appropriation and outlay accounts of Provincial Works for 1874-75.

2. The final Budget Grant amounted to Rupees 11,91,158 against which an outlay of Rupees 12,84,669 has been recorded in the Controller's books. The excess of Rupees 93,511 has occurred principally under the following heads :—

	RS.
Repairs	10,902
Tools and Plant	36,502
Stock	47,259

3. The remarks in paragraph 1 of the Note explain how the excess under stock was brought about, and show how uncertain must be estimates of stock balances formed long before the close of the year to which they relate.

4. The following statement shows the grant and outlay under each head, and includes the grant-in-aid of Rupees 12,00,000 to Local Funds :—

Service Heads.	Final Grant.	Outlay.
Original Works.	RS.	RS.
Civil Buildings	5,94,240	5,95,698
Communications	1,62,588	1,66,258
Miscellaneous Public Improvements	21,091	9,771
	7,77,919	7,71,727
Repairs.		
Civil Buildings	1,42,578	1,53,904
Communications	37,709	32,353
Miscellanecus Public Improvements	13,946	18,878
	1,94,233	2,05,135
Establishment	2,00,000	2,05,070
Tools and Plant	19,006	55,508
Profit and Loss	...	245
Total ...	11,91,158	12,37,685
Additional Grant	...	...
Public Works Proper	11,91,158	12,37,685
Add increase of Stock	...	47,259
Less decrease in London Invoices	...	275
Public Works Proper	11,91,158	12,84,669
Add for Communications	...	...
Charged under Local.		
New Works	6,50,000	12,00,000
Repairs	2,50,000	
Establishment	3,00,000	
Total ...	23,91,158	24,84,669

5. The results so far as the outlay on "Works" is concerned may on the whole be regarded as satisfactory. There are several works however on which allotments

made have not been fully utilized. The following are the most notable instances :—

Districts.		Original Works.	Final Grant.	Expenditure.	Remarks.
		Civil Buildings.	RS.	RS.	
(14.)	South Canara .	District Court-house, Mangalore	10,000	6,473	
(43.)	Wynaad ...	Deputy Collector's Cutcherry, Manantoddy.	7,825	3,515	
(65.)	Nellore... ...	Tahsildar's Cutcherry and Sub-jail at Vencatagiri.	6,870	4,235	
(74.)	Bellary ...	Deputy Tahsildar and Sub-Magistrate's Cutcherry, Yemaganoor.	5,700	1,991	
(76.)	North Arcot...	Deputy Tahsildar's Cutcherry and Sub-Jail at Vencatagiricottah.	10,000	5,000	
(78.)	Do. ...	Do. do. at Coopum	4,653	2,737	
(79.)	Do. ...	Tahsildar's Cutcherry and Sub-jail, Palmanair.	4,570	1,138	
(84.)	South Arcot...	Taluq Cutcherry, Kullakoorchy	4,000	1,851	
(126.)	Malabar ...	Lightning Conductors to Central Jail, Cannanore.	3,272	2	
(127.)	Do. ...	House for Superintendent, Central Jail, Cannanore.	4,228	1,549	By Civil Officers.
		Miscellaneous Public Improvements.			
(4.)	Presidency ...	Restoring Madras Pier	2,346	173	

6. The short expenditure on Items 14, 65, 74, and 126 has already been remarked on in G.O., No. 2,956, dated 15th October 1875, and that on Items 43 and 127 was explained in the papers recorded with G.O., No. 1,491, dated 31st May, G.O., No. 1,951, dated 10th July 1875, and G.O., No. 3,114, dated 3rd November 1875.

7. Unexpended balances of allotments for Items 76, 78, and 79 were surrendered during the year and utilized on other works; but in connection with Items 84* and 4† the amounts shown in the margin were allowed to lapse. It will now be explained why these sums were not given up in good time if they could not be spent on the works for which they were allotted.

* Rupees 2,149.
† " 2,173.

8. There are forty-one items held to be objectionable under the rules classified as shown below :—

		No.	Amount.
			RS.
(1.)	Without estimate	6	16,299
(2.)	Do. grant	21	13,084
(3.)	In excess of estimate	3	2,803
(4.)	Do. of grant	11	17,400

9. Five out of six of the items falling under category 1 were for small amounts below Rupees 500, but this does not obviate the necessity for sanctioned estimates being provided. This should be attended to by District Engineers.

10. An estimate of Rupees 52,690 has been submitted for Item 1, and is now under consideration. The unsanctioned outlay on this work has formed the subject of several orders of Government.—*Vide* G.O., No. 1,025, dated 21st April, and No. 1,786, dated 3rd July 1875. The bulk of the outlay was incurred in previous years, the expenditure during the current year amounting to Rupees 61 only. The excess outlay

on Item No. 38 was reviewed in G.O., No. 2,914, dated 12th October 1875. Explanation should be submitted of the causes of the outlay in excess of estimates in connection with Items 28, 29, and 30.

11. The excesses incurred under categories 2 and 4 are passed.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 380. (DOCKET No. 3,275, dated 16th November 1875.)

COPY of the above forwarded to the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 381. Read the following endorsement of the Controller of Public Works Accounts, dated 11th October 1875 :—

REPORT ON THE APPROPRIATION ACCOUNTS FOR 1874-75.

BUILDINGS AND ROADS BRANCH.

Imperial Ordinary, Public Works.

THE original budget grant was Rupees 8,09,000, but by a withdrawal of Rupees 20,000 by the Government of India on account of urgent requirements in other Presidencies from the provision of Rupees 46,000 in item No. 28 of the Budget, the final grant at the end of the year stood at Rupees 7,89,000 inclusive of Rupees 11,000 intended for expenditure in England. Against this final grant the amount of outlay was Rupees 7,87,453; but taking into account the fluctuations in the balances of stock and London invoices, and deducting for expenditure in England, the net debit on account of expenditure in India was Rupees 8,35,730; comparing this with the net grant for expenditure in India (Rupees 7,78,000), the outlay in India was Rupees 57,730 more than the sanctioned grant. This excess is due to the increase in the item of stock owing to the value of Mint stores (Rupees 60,031) brought on to the stock accounts of the Presidency Store Department.

2. *Military, Original Works.*—Under this head the original grant was Rupees 3,11,400, the final grant Rupees 3,41,076, while the outlay was Rupees 3,28,534; twenty-six works were brought forward in the budget, of which the following were not undertaken :—

Item No. 6.—Extending Smith's forges near the Grand Arsenal at the Presidency.

Item No. 7.—Quarters for the Warrant and the Non-Commissioned officers of the Commissariat Department at the Presidency.

Item No. 15.—Two Magazines for Native Infantry Regiments at Bangalore.

Item No. 18.—District Engineer's Office at Bangalore.

Item No. 19.—Roofing in latrines of the 38th Regiment, Native Infantry and followers of the Royal Artillery, &c., at Trichinopoly.

The grants for the 1st and 3rd items were cancelled by the Local Government* partly to meet the cost of certain alterations to punkahs in the Infantry and Artillery Barracks, &c., in Fort St. George; the provision made for the 2nd item was transferred† to meet the cost of the improvement to the Gun Powder Factory at Madras; while that made for the 4th item was disallowed‡ by the Government of India. The last item was not undertaken owing to the Military authorities deciding upon not carrying out the work. Of the remaining twenty-one works on which fair progress was made in comparison to the final grants of the year, one § work exceeded both the estimate and grant for the year, ‖ four works exceeded only the final grants, while on two ¶ works the expenditure was in excess of the estimates. As regards the other fourteen works the outlay was equal to or short of the final grant in each case.

* G. O., No. 1,552, dated 12th June 1874.
" " 1,654, " 19th " "

† G. O., No. 2,040-A, dated 28th July 1874.

‡ In orders passed on the Madras Budget for 1874-75.

§ Item No. 22.
‖ Items Nos. 13, 14, 24, and 26.
¶ Items Nos. 3 and 23.

3. *Military Repairs.*—The expenditure under this head, *viz.*, Rupees 2,32,218, has fallen short both of the budget and final grants, but on comparison with the past outlay it stands at a little above the average of the previous five years' expenditure, which amount to the following :—

	RS.
1869-70	1,83,110
1870-71	2,23,005
1871-72	2,23,485
1872-73	2,43,069
1873-74	2,59,703

4. Other Services.—*Original Works.*—Under this head the original grant was Rupees 76,500, the final grant Rupees 29,821, and the outlay Rupees 28,634. This outlay is divided between Telegraph buildings Rupees 15,116, Postal buildings Rupees 9,537, and coal-boring operations Rupees 3,981.

5. Telegraph Buildings.—The grant of Rupees 50,000 for the Telegraph Office at Madras was disallowed by the Government of India, but a trifling expenditure of Rupees 208 was incurred on account of watchmen, &c., at site of the work where materials were collected. The Telegraph offices at Cocanada and Rajahmundry were completed this year, the former at a cost of Rupees 20,267 against an estimate of Rupees 22,470, and the latter at a cost of Rupees 7,743 against an estimate of Rupees 7,900. The construction of a Telegraph office at Masulipatam and of Signallers' quarters at Bellary was commenced this year on estimates of Rupees 5,880 and Rupees 9,930, and the expenditure incurred thereon was Rupees 5,294 and Rs. 7,000 respectively.

Other Services.—*Repairs.*—The outlay under this head has been Rupees 4,715 divided between Telegraph buildings Rupees 1,075 and Postal buildings Rupees 3,640 against the final grant of Rupees 4,829. There is nothing calling for particular remark under this head.

6. ESTABLISHMENT.—The charges under this head amount to Rupees 1,62,508* made up of 25 per cent. on the grant for Military Works and Other Services plus the amount of salary, &c., disbursed to Mr. Vanstavern specially employed on the coal-boring operations, and have been thus distributed under the orders of Government marginally quoted.† As it has been decided that the whole of the Public Works Establishments in this Presidency from the commencement of 1874-75 shall, for purposes of account, be considered Provincial, the cost of the entire establishment will be reviewed in the report on Provincial Services outlay.

* Military—	GRANTS. RS.	RS.	A.	P.
Original Works...	3,41,076			
Repairs	2,44,324			
At 25 per cent ...	5,85,400 =	1,46,350	0	0
Total, Military ...		1,46,350	0	0
Other Services—				
Original Works...	29,821			
Repairs	4,829			
at 25 per cent. ...	34,650 =	8,662	8	0
Establishment charges on account of coal-boring operations.		7,495	12	6
Total, Other Services ...		16,158	4	6
Grand Total ...		1,62,508	4	6

† No. 2,991-A, dated 20th Oct. 1874.
„ 3,588, „ 19th Dec. „
„ 595, „ 2nd March 1875.
„ 736, „ 16th „ „

7. TOOLS AND PLANT.—The outlay has been Rupees 30,844 against a final budget grant of Rupees 10,950. Of the excess of Rupees 19,894, Rupees 11,232 represents the charges on account of the working of the Dowlaishweram Factory during the year under review, while the outlay of Rupees 30,844 includes a charge of Rupees 4,850-4-9, the proportion of the cost of English supplies falling to the share of this head of service.

8. PUBLIC WORKS REVENUE.—In the budget, as passed by the Government of India, the revenue was estimated at Rupees 75,000, and the same figure was given in the regular estimate with slight variations in items. The actuals, however, are in excess by 40,039, caused chiefly in three items, "tolls, dues, fines, refunds; rents of buildings; and sales of buildings, old materials, &c.," of which the former is in excess of the budget by Rupees 55,900, and the two latter less than budget by Rupees 15,900. The excess in the former is on account of the sum of Rupees 60,000 credited to revenue by debit to the head of Stock, *vide* paragraph 1 of this report. The decrease in the item of sales of buildings, old materials, and tools and plant is owing to receipts on account of sales of tools and plant falling short of what was anticipated.

9. The following items remained classed as "objectionable" at the close of the year :—

Expenditure without Grant.

		RS.
1.	Telegraph Office at Madras	208
2.	Re-roofing Surgery buildings at Trichinopoly	300
3.	Repairing the Cattle Shed, new Rest-house at Bangalore ...	288
	Expenditure in excess of estimate beyond prescribed limitation.	
4.	Paving wells in the Cantonment of Cannanore	893
	Expenditure in excess of grant beyond prescribed limitation.	
5.	White-washing Royal Artillery and Royal Horse Artillery Barracks at Bangalore	1,286
6.	New Recreation-room at Parade Barracks ... ... } New Canteen at Parade Barracks ... ... }	832

		RS.
7.	Completing the unfinished portion of No. 4 Barracks at Wellington	759
8.	Paving wells in the Cantonment of Cannanore	883
9.	Slaughter-house and Cattle Yard at Cannanore	699
10.	New Officers' Quarters at Malliapuram	3,184

None of these items are of such importance as to call for any special remark.

(Signed) L. CONWAY-GORDON, Captain, R.E.,
Controller of Public Works Accounts.

FORWARDED to the Secretary to Government, Public Works Department, for the information of Government.

(Signed) L. CONWAY-GORDON, Captain, R.E.,
Controller of Public Works Accounts.

11*th October* 1875.

No. 382. ORDER THEREON, 16th November 1875, No. 3,276.

ACCOUNT, No. 9.

IN the above report the Controller of Public Works Accounts reviews the Appropriation and Outlay Accounts for the year 1874-75 under Buildings and Roads Branch, Imperial, Ordinary.

2. The aggregate grant, as modified during the year under each head for Imperial Ordinary compared with the outlay, is shown below :—

——	Final Grant.	Outlay.
	RS.	RS.
Military.		
Original Works	3,41,076	3,28,534
Repairs	2,44,324	2,32,218
CIVIL BUILDINGS. *Postal, Telegraph, &c., Buildings.*		
Original Works	29,821	28,634
Repairs	4,829	4,715
Establishment	1,58,000	1,62,508
Tools and Plant	10,950	30,844
Increase of stock	...	80,872
Do. in London Invoices... ...	...	4,843
	7,89,050	8,73,168
Less reduction of grant to meet expenditure in England	11,000	...
Less expenditure in England ...	...	37,348
Total ...	7,78,000	8,35,730

thus showing an excess outlay of Rupees 57,730 mainly occasioned by the value (Rupees 60,031) of Mint stores having been brought on to the stock accounts of the Presidency Store Department.

3. The Honorable the Governor in Council observes that the outlays under the different heads fairly approximate with the grants, and it is eminently satisfactory to find that the grants made by the Government of India do not fail to be fully availed of.

4. There was a large excess in the actual receipts over the estimate thus—

	RS.
Budget Estimate	75,000
Regular do.	75,000
Actuals	1,15,039

or Rupees 40,039 excess, resulting from larger collections having been made from tolls, dues, fines, &c., than were anticipated at the time of submission of the estimate.

5. Amongst the items classed as "objectionable" satisfactory explanation has been afforded by the District Engineer, Malabar, regarding Items 4 and 8, "paving wells at Cannanore;" the other excesses over appropriations and the expenditure without appropriation have already been passed in G.O., No. 2,863, dated 6th October 1875.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 382-A. (DOCKET No. 3,276-A, dated 16th November 1875.)

COPY of the above forwarded to the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 383. Read the following endorsement of the Officiating Chief Secretary to Government, dated 10th November 1875, No. 657 :—

From C. SIMPSON, Esq., Chairman of the Chamber of Commerce, to the Hon. D. F. CARMICHAEL, Officiating Chief Secretary to Government, Fort St. George, dated Madras, 8th November 1875.

ON the 10th October of last year the Postmaster-General of Madras communicated for this Chamber's information copy of a letter from the Assistant Secretary to the Government of India to the Director-General of the Post Office in India, under date the 25th September, in which it was stated that the detailed design and estimate for a new Post Office at Madras were awaited from the Local Government, and that provision for it would be made "in next year's budget;" the Chamber are also informed that such provision was in due course made. Notwithstanding this no progress has this year been made with the foundations of the united Post and Telegraph Offices' building which were commenced upwards of a year ago, and the Chamber have observed that those foundations have been partially filled up with sand that had been excavated from the site. I am, therefore, desired to do myself the honor of expressing to you, for communication to His Excellency the Governor in Council, the hope of the Chamber, that no intention exists in any quarter to indefinitely postpone the erection of the building. Seven years have elapsed since the project for a new Post Office was mooted, and the need of a building thoroughly adapted for the accommodation of the local Postal and Telegraph authorities—more especially perhaps of the latter—has not diminished during that period. The Chamber trust therefore that the Government will

be pleased to take such steps as may be necessary for supplying what has long been admitted to be a great want in this city, that is keenly felt by the mercantile community.

TRANSFERRED to the Public Works Department for disposal.

(Signed) D. F. CARMICHAEL,
Offg. Chief Secretary.

No. 384. ORDER THEREON, 16th November 1875, No. 3,277.

CIVIL WORKS, No. 27.

THE Chamber of Commerce will be informed that a final reference about the estimates for the buildings in question has been made by the Government of India; but that, as they have in letter, No. 692-709 A.G., dated 30th October 1875, just received allotted one lakh of Rupees for expenditure on the buildings during 1876-77, His Excellency the Governor in Council is not apprehensive that any delay will occur in the prosecution of the work after 1st April 1876.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following letters :—

No. 385. From Colonel F. J. MOBERLY, R.E., Superintending Engineer, Chingleput, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Guindy, 19th October 1875, No. 3,022.

I HAVE the honor to request permission to purchase an American clock for the use of the Mount Range Office, the present one being altogether worn out.

No. 385-A. From the same Officer, dated Camp Satry, 14th November 1875, No. 3,417.

WITH reference to your Memorandum, No. 588, dated 29th October 1875, I have the honor to state that the price of the clock required by the Executive Engineer, Mount Range, is Rupees 19.

No. 386. ORDER THEREON, 16th November 1875, No. 3,278.

ACCOUNT, No. 9-A.

THE purchase is sanctioned.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 387. Read the following endorsement of the Consulting Engineer for Railways, dated Madras, 8th November 1875, No. 604 :—

No. 959.

SOUTH INDIAN RAILWAY.

ENGINEERING DEPARTMENT.

Report of Accident.

Collectorate.—Madura. *Railway District, Section and Mile.*—District No. 8, Southern Extension, Section 1, mile 4, chains 30. *Between what two Stations, and name of nearest Village.*—Between Tiramangalam and Madura, nearest village, Tiramangalam. *Whether at a level crossing or not.*—Not. *Date of the accident.*—18th October 1875. *Nature of the accident.*—Toes cut off right foot by ballast wagon. *Circumstances which caused the accident.*—Train uncoupled from engine and ran back, the injured man became alarmed and jumped out. *Nature of assistance afforded.*—Carried as quickly as possible to Madura Dispensary. *Name, age, caste, and occupation.*—Name, Manamakam ; age, 19 years ; caste, Pullen ; occupation, ballast cooly. *Gratuity proposed to be given or not ; if so, how much.*—Will be considered. *Whether reported to the Police authorities and Verdict of Inquest (if any).*—Reported to the Police at Madura. *Remarks by the Company's Officers.*—Engine became uncoupled on an incline of 1 in 220, train ran back and before it could be brought to a stand still the injured man, who was alarmed, jumped out. The engine is stated to have been coupled in a proper manner, and cridle down, but further inquiry is being made as to this.

TRICHINOPOLY,
October 1875.

(Signed) F. F. SMITH,
for *Chief Engineer.*

To the Consulting Engineer for Railways, Madras.

(Signed) D. LOGAN,
Acting Agent.

SUBMITTED to Government.

2. Further information will follow.

3. The attention of the Agent has been called to the fact that this accident, which happened on the 18th of October, was not reported so as to reach this office before the 7th November.

4. The narrow gauge couplings evidently call for increased vigilance on the part of the traffic staff, as pointed out to the Agent before the line was opened for public traffic, and, this the second accident in three days, affords still further evidence, if more were needed, in favor of insisting on adequate brake-power being at once supplied to every train.

(Signed) C. J. SMITH, Major, R.E.,
for *Consulting Engineer for Railways.*

No. 388. ORDER THEREON, 16th November 1875, No. 3,279.

RAILWAY, No. 46.

As remarked by the Consulting Engineer the accident reported in these papers is the second which has occurred within three days on the South Indian Railway owing to defective coupling arrangements. His Excellency the Governor in Council is of opinion that this matter requires the immediate attention of the Railway authorities, who should do what is necessary for

security without delay. The nature of the improvements required by, and carried out to, the coupling arrangements should be reported in detail. The attention of the Company has already been drawn to the necessity of increasing the brake-power at the earliest date practicable.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 389. Read the following endorsement of the Consulting Engineer for Railways, dated Madras, 5th November 1875, No. 601 :—

SOUTH INDIAN RAILWAY.

ENGINEERING DEPARTMENT.

Report of Accident.

Collectorate.—Madura. *Railway District, section and mile.*—District No. 5, Section No. 1, 4*th* mile. *Between what two Stations and name of nearest village.*—Between Dindigul and Ammanaikanoor, village Ambotoray. *Whether at a level crossing or not.*—No. *Date of the Accident.*—18th June 1875. *Nature of the Accident.*—Return material train from Madura run over and killed the boy. The left arm at a little below the shoulder joint is severed; the bones of the arm and forearm have been crushed like a cake, and the hand is severed also, but attached by a fold of skin. The right thigh bone is smashed and the leg is severed at the ankle, and the upper portion of the (right) *tibia* and *fibula* about 2 or 3 inches cannot be seen. The foot is severed. The left leg bones are crushed below the knee. The scalp, about 2 inches long, is divided below and back of the crown of head. *Circumstances which caused the accident.*—Driver of return material train from Madura to Trichinopoly sighted boy too late to pull up the train. *Nature of assistance afforded.*—Train stopped; boy was picked up dead; taken to Dindigul and handed over to the Dresser in charge of District 5, for examination. *Name, age, caste and occupation.*—Suntiagoo, aged 15 years, Christian. *Gratuity proposed to be given or not, if so, how, much.*—None. *Whether reported to the Police authorities and verdict of Inquest (if any).*—Reported to Police authorities at once; copy of verdict not sent with this, owing to absence of Joint Magistrate.—*Remarks by the Company's Officers.*—Boy was in the employ of Inspector Pharoah, 1st Section, District 5, as a cow-herd; his letter reporting the circumstance. From inquires I made on the spot I find that permanent-way gang were at 3 miles 40 chains, and the mile watchman was at or about 2 miles 40 chains.

TRICHINOPOLY,
6*th July* 1875.

(Signed) D. LOGAN,
Chief Engineer.
(„) W. S. BETTS,
Agent.

SUBMITTED for the information of Government.

2. This accident was first reported on the 21st June. Further particulars followed on the 8th July, and on the 5th August the inquest verdict was sent. The Agent was then asked to report the mileage in order that this office might know whether any curve in the line would explain the apparent negligence of a driver in not seeing a boy on the open line until too close to stop. Owing to there being no mileage posts or numbers to the telegraph posts at the time, this fact it appears cannot be furnished, nor can this office for the same reason, in the absence of any

information as to the gradient, judge as to the possible effect of brake power vigorously applied on an ascending gradient, if such it was. It would seem that the line watch must at that time have been ineffective.

(Signed) C. J. SMITH, Major, R.E.,
for *Consulting Engineer for Railways.*

No. 390. ORDER THEREON, 16th November 1875, No. 3,280.

RAILWAY, No. 47.

RECORDED. His Excellency the Governor in Council observes from separate correspondence that the defects noticed in the Consulting Engineer's endorsement are engaging the attention of the Railway authorities with a view to their removal as early as practicable.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 391. Read the following letter from Captain L. CONWAY-GORDON, R.E., Controller of Public Works Accounts, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 10th November 1875, No. 133 W. :—

ADVERTING to G.O., Nos. 2,285 and 2,610, dated 7th August and 10th September 1875, respectively, I have the honor to request that you will be so good as to inform me to what head of service, " Imperial or Provincial," the expenditure incurred in the Madras Harbour Works is to be charged.

No. 392. ORDER THEREON, 16th November 1875, No. 3,281.

ACCOUNT, No. 10.

As the expenditure to be incurred in carrying out the works for the Madras Harbour will be met from a Loan about being raised for the purpose, the Controller is directed to debit all current charges on account thereof to " Suspense" until further orders.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 393. Read the following letter from T. D. HARRIS, Esq., Officiating District Engineer, Malabar, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Calicut 9th November 1875, No. 119 :—

I HAVE the honor to forward copy of a letter No. 256, dated 4th instant, from the Assistant Engineer in charge of the Cannanore Range, and its accompaniments, requesting that Sub-Overseer, 1st grade, P. Rarichen may, in consideration of his long services in the Executive Department, and the good character he bears, be exempted from passing Taluq Overseer's Test.

2. I do not hesitate to support Lieutenant Dobson's recommendation on behalf of the Sub-Overseer as a thoroughly practical man, but I am not aware whether the man is entitled for an exemption on the face of G.O., 1,191, dated 25th April 1873, and I therefore leave the matter to your most generous consideration.

3. I beg leave, however, to call your attention to the fact that the applicant served his apprenticeship in the department, and has devoted the best part of his life in serving therein, he has testimonials from distinguished officers, and I have seen him work myself and can state that he thoroughly understands his duties, works with zeal, and very little waste occurs in his works.

Nos. 394. ORDER THEREON, 16th November 1875, No. 3,282.

ESTABLISHMENT, No. 25.

EXEMPTION is granted as a special case, with effect from the date of the occurrence of a permanent vacancy.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 395. Read the following letter from W. C. FURNIVALL, Esq., Under Secretary to the Government of India, Public Works Department, (Railway,) to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department, (Railway,) dated Simla, 25th October 1875, No. 2,664 R. :—

I AM directed to request that you will forward, for the information of the Government of India, a copy of the correspondence referred to at the end of paragraph 1 of the despatch from the Secretary of State to His Excellency the Governor of Madras, No. 6, Railway, dated the 23rd September 1875, and that you will state what steps are being taken for the introduction of economy in working the traffic on the South Indian Railway.

No. 396. ORDER THEREON, 16th November 1875, No. 3,283.

RAILWAY, No. 48.

ORDERED that the following reply be sent.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 397. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Government of India, P.W.D., dated 16th November 1875, No. 3,284.

RAILWAY, No. 49.

SIR,—In reply to your letter No. 2,664 R., dated 25th October 1875, I am directed to forward herewith a copy of the Proceedings of the Madras Government, No. 3,087, dated 1st November 1875, which contain the papers called for by the Government of India, and show the action which has been taken on the reference made by the Secretary of State.

No. 398. Read the following endorsement of the Controller of Public Works Accounts, dated 11th October 1875 :—

REPORT ON THE APPROPRIATION ACCOUNTS FOR 1874-75.

IRRIGATION BRANCH.

Extraordinary.—The budget grant under Extraordinary was Rupees 8,00,000, including the refund of Rupees 1,00,000 from Ordinary on account of the Madras Water-Supply Project, and including a provision of Rupees 1,615 for expenditure in England. The Government of India, in their orders on the Madras Budget, fixed Rupees 25,000 as the budget grant for expenditure in England under Extraordinary, which sum, however, was distributed by the Local Government* between Extraordinary Rupees 1,615, and Ordinary Rupees 23,385. Thus the net allotment for expenditure in India was Rupees 7,98,385, and the outlay against that allotment Rupees 7,18,032.

* G.O., No. 1,358, dated 21st May 1874.

Taking into account the refund of Rupees 1,00,000 from Ordinary to Extraordinary, and Rupees 511 realized as receipts on Capital Account, the result is a net outlay of Rupees 6,17,521 against a final grant of Rupees 6,98,385 as shown in the accounts, or Rupees 80,864 less than the grant for expenditure in India. There was no expenditure in England on account of Extraordinary Irrigation Works.

	RS.
(1)	2,91,950
(2)	18,42,050
(3)	2,000
Total ...	21,36,000

2. *Ordinary.*—The budget grant under this head, including Capital (1), Revenue (2), and Ordinary Agricultural Works (3), was Rupees 21,36,000 (excluding the provision of the Rupees 1,00,000 for refund to Extraordinary), whilst additions† made thereto during the year to the extent of Rupees 20,000 under Capital, and Rupees 1,83,000 under Revenue, bring up the final grant to Rupees 23,39,000, distributed thus :—

† Under G.O., No. 3,103-A, dated 30th October 1874.
G.O., No. 3,579, dated 19th Dec. 1874.
" " 184, " 22nd Jan. 1875.
" " 830, " 24th Mar. "
" " 859 I., " 31st " "

	RS.
Capital	3,11,950
Revenue	20,25,050
Ordinary Agricultural Works	2,000

which includes a provision of Rupees 23,385 for expenditure in England.

The net grant for expenditure in India was, therefore, Rupees 23,15,615, while the outlay thereon including increase in stock (Rupees 18,671) and increase in London invoices (Rupees 74) amounted to Rupees 25,60,990; but taking into account the provision of Rupees 1,00,000 above referred to, and the reductions against receipts on Capital (*a*) Account and expenditure (*b*) in England, there is a net outlay of Rupees 26,53,059 against a final grant of Rupees 24,15,615 showing an excess out-

	RS.
(*a*)	286
(*b*)	7,645

lay of Rupees 2,37,444 over the grant for expenditure in India, as shown in the accounts. This excess is distributed to the several heads in the following table comparing final grant with outlay, in which the entire ordinary grant and outlay have been taken under the two divisions of Capital and Revenue as was done in the report on the accounts of the previous year :—

Service Heads		Final Grant.	Outlay.
		RS.	RS.
Capital	Works ...	3,18,950	3,72,005
	Establishment ...	55,000	1,09,963
	Tools and Plant ...	40,000	2,942
	Profit and Loss ...	...	191
	Increase in Stock ...	...	18,671
	,, in London invoices ...	...	74
	Less reduction of grant to meet expenditure in England ...	23,385	...
	Less receipts on Capital Account ...	...	286
	„ expenditure in England ...	...	7,645
	Total Capital ...	3,90,565	4,95,915
Revenue	Extensions and improvements ...	...	2,371
	Maintenance and repair ...	15,50,050	15,43,707
	Establishment ...	4,45,000	5,57,326
	Tools and Plant ...	30,000	58,842
	Total Revenue ...	20,25,050	21,57,144
	Grand Total, Ordinary ...	24,15,615	26,53,059

3. *State Outlay on Guaranteed Irrigation Works.*—The budget grant for this purpose was Rupees 14,000, which was subsequently reduced* to Rupees 9,000 by transfer of Rupees 5,000 to Capital Ordinary on account of Minor New Works Agricultural. The outlay against this reduced grant has been Rupees 5,287 made up of Rupees 537 on account of land, and Rupees 4,750 on account of establishment. The provision for the outlay on these accounts is included in the budget under Capital Ordinary, but they have been shown distinctly in this report and in the annual accounts.

* Under G.O., No. 3,599, dated 19th December 1874.

4. The outlay under each head of service, as compared with the budget grant, may be noticed as follows :—

I.—Extraordinary.

		RS.
Works...	Grant ...	5,95,000
	Outlay ...	5,35,658
	Short Outlay ...	59,342

The following are the budget works on which expenditure was incurred during the year in excess of final grant, and the excesses in these cases are not of such importance as to require notice :—

Item 4., Godavery, Western Delta Project.—Budget grant of Rupees 1,87,437 reduced during the year to Rupees 1,61,437, against which an outlay of Rupees 1,64,962 was incurred.

Item 6, Pulleru Channel.—Budget grant Rupees 12,645 reduced during the year to Rupees 8,645, against which an outlay of Rupees 9,264 was incurred.

The other budget works on which the outlay in each case was less than the grant are the following :—

Item 3, extension of irrigation in the Eastern Delta Project, Godavery.—The final grant for this work being Rupees 1,49,300, while the outlay thereon was Rupees 1,44,300.

Item 7, Masulipatam Canal—Final grant Rupees 33,327, outlay Rupees 26,965.

Item 8, enlargement and improvement of Ryves' Channel—Final grant Rupees 34,000, outlay Rupees 33,072.

Item 9, sloping down the banks and enlarging the head of the main canal from Seetanagrum to Dugeralla—Final grant Rupees 34,254, outlay Rupees 29,253.

Item 13, Pennair Anicut Works—Final grant Rs. 22,774, outlay Rs. 21,467.

Item 23, Pelandorai Anicut Project—Final grant Rs. 34,050, outlay Rs. 20,000.

Item 31, Streeviguntum Anicut Project—Final grant Rupees 58,043, outlay Rupees 51,931.

Owing to the want of boats, a large quantity of materials could not be despatched for several of the minor masonry works, which resulted in the short outlay of Rupees 5,000 on item 3 of the budget. The short outlay of Rupees 1,307 on item 13 of the budget is said to be owing to the concentration of all available labor on the numerous emergent works caused by the flood damages of the Pennair river. The short outlay of Rupees 14,050 is the amount of the additional grant for item 23 of the budget, sanctioned by Government on the 31st March 1875 in G.O., No. 859, which appears to have been given too late to be utilized on the work. No reports have been received of the cause of the short outlay in the case of the other works.

		RS.
Establishment...	Grant	1,75,000
	Outlay	1,60,942
	Short Outlay...	14,058

The charge to this head is made up of 25 per cent. on the amount of final grant for works, *viz.*, Rupees 1,48,750 and Rupees 12,192 on account of survey establishments.

		RS.
Tools and Plant.	Grant	30,000
	Outlay	21,432
	Short Outlay	8,568

The grant under this head includes Rupees 1,615 provision for expenditure in England against which there has been no charge, and Rupees 5,135 not allotted by Government to the local officers.

II.—Ordinary Capital.

The following comparisons of grant and outlay are made according to the table given in paragraph 2, taking together the entire ordinary grant under Capital and Revenue.

		RS.
Works...	Grant ...	3,18,950
	Outlay ...	3,72,005
	Excess Outlay ...	53,055

The outlay includes a sum of Rupees 22,600 charged under the head "Ordinary Agricultural Works," against which a grant of only Rupees 2,000 appears as per budget in the Appropriation Account. Outlay was incurred on all the works provided in the budget under Capital Ordinary, and the only item calling for remark as showing considerable difference between grant and outlay is the following:—

Chembrumbaukum Tank Project.—Against a final grant of Rupees 17,183 the outlay was Rupees 27,720, the difference of Rupees 10,537 is due to the amount paid by the civil department as compensation for land for which no budget provision appears to have been made.

		RS.
Establishment ...	Grant ...	55,000
	Outlay ...	1,09,963
	Excess Outlay ...	54,963

The outlay above shown is made up of a per-centage charge on the outlay on works, and the cost of the establishment of the Chief Engineer for Irrigation and Survey Establishments.

		RS.
Tools and Plant.	Grant ...	40,000
	Outlay ...	2,942
	Short Outlay ...	37,058

With the outlay of Rupees 2,942 must be taken into account the expenditure in England amounting to Rupees 7,645, for which provision to the extent of Rs. 23,385 is included in the grant of Rupees 40,000. Taking altogether, there is a saving under this head of Rupees 29,413, which is counterbalanced by an excess outlay of Rupees 28,842 under the corresponding head revenue expenditure.

Profit and Loss, Rupees 191.—The amount was charged to this head under the orders of Government, No. 335, dated 12th February 1874, and represents the value of sand collected for the Chabrole bridgework in the Kistna district which could not be accounted for, but supposed to be lost by wastage.

Ordinary Revenue.

		RS.
Maintenance and Repairs.	Grant ...	15,50,050
	Outlay ...	15,43,707
	Short Outlay ...	6,343

The outlay includes a sum of Rupees 2,65,048 charged as "Ordinary Agricultural Works," under which head no provision was made for repairs as will be seen from Part I. of the Appropriation Account.

		RS.
Establishment...	Grant	4,45,000
	Outlay	5,57,326
	Excess Outlay	1,12,326

The outlay includes a sum of Rupees 1,02,187 on account of Conservancy Establishments, and Rupees 899 on account of Survey Establishment, while the per-centage charge is calculated on the amount of grant for works, which was greater than the outlay thereon.

		RS.
Tools and Plant ...	Grant	30,000
	Outlay	58,842
	Excess Outlay	28,842

This excess is counterbalanced by the saving of Rupees 29,413 under the corresponding head of Capital.

5. *Receipts.*—The amount recovered under Capital Account Extraordinary was Rupees 511, and that under Capital Ordinary Rupees 286 as per annual accounts.

Receipts on Revenue Account as per budget were estimated at Rupees 70,000, while the regular estimate provided for Rupees 76,000. The actual receipts, however, amounted to Rupees 73,319, which is compared in the following table with the items of the regular estimate :—

	Regular Estimate.	Actuals.
	RS.	RS.
Receipts from Navigation	45,000	39,422
Water-power	...	141
Grass Rents, &c.	22,000	23,192
Miscellaneous	9,000	10,564
Total ...	76,000	73,319

The following sums were also realized in addition to the above and credited to the head "Ordinary Revenue Receipts :—"

	RS.
Sales of produce	511
Miscellaneous	5,150
Total ...	5,661

6. The following is a detail of the items of outlay held as "objectionable" for want of estimate, &c :—

Expenditure without Estimate.

		RS.
1.	Constructing new river embankment at Kotapully Lunkah	423
2.	Repairing Kasarapully Lock	773
3.	Charges for Stoney's Head-sluice Valve in Seetanagaram Canal	1,345

Expenditure without Estimate.— (Continued.)

		RS.
4.	Fitting up Veeranky Lock Gates	2,706
5.	Constructing an Under-tunnel at Inampudy...	7,930
6.	Pembodypully Tank	270
7.	Mully Elluma Rajoo Cheruvu	271
8.	Veerapully Peddacherun	391
9.	Bookapatam Tank	3,489
10.	Cotanoor Tank	651
11.	Locherla Tank Supply Channel	700
12.	Closing breach in Busapully Tank	1,100
13.	Repairing Nundial Tank	6,348
14.	Closing breaches to Chinnadavalapuram Koonmiali Tank	1,242
15.	Do. to Peddadavulapuram Erra Tank	1,042
16.	Do. to Suntha Gootloor Sundanapur Tank	729
17.	Repairing Davana Kaidah Yellapanai Tank	278
18.	Do. Yerraland Tank	235
19.	Emergent repairs to Manapawkam River Channel	952
20.	Repairing Keelpauk Tank	256
21.	Do. Perrumbadu Tank	271
22.	Do. Yanathy Dalapauk Tank	356
23.	Neelamangalam Tank	545
24.	Veerajacuram Large Tank	298
25.	Pennagur Tank Supply Channel	400
26.	Kulcolum Tank	641
27.	Kunnathur Tank	456
28.	Repairing the Chembrumbaukum Tank	759
29.	Restoring Kesavaram Anicut	382
30.	Tinnanore Tank Supply Channel	562
31.	Constructing temporary ring bund in front of breached portion of anicut Tamasamhi...	570
32.	Repairing Poornapaukam Tank	241
33.	Do. Guduvancari Tank	339
34.	Do. Matheweram Tank	246
35.	Do. Chevatha Panapawkam Tank	233
36.	Do. Maddoor Tank	738
37.	Sengathoor Tank	358
38.	Nallancarachy Tank	364
39.	Athemanu Tank	260
40.	Ootramalloor Tank	250
41.	Improvements to the Malatar Channel	611
42.	Repairing the bund of Kellacoorchy Tank	281
43.	Do. Spring Pond and Channel of Pyoor	604
44.	Do. the Gramam river and Spring Channel...	252
45.	Closing breaches in tank bund and clearing the Supply Channel of Accadavally	703
46.	Strengthening the river embankment of Kongarakondam...	518
47.	Clearing Thirumungalam Spring Channel	310
48.	Strengthening Thirupaukanur river embankment	1,230
49.	Do. the protective embankment of Vadumbalum Village ...	367
50.	Do. the river embankment of Arasamungalum Village... ...	482

Expenditure without Estimate.—(Concluded.)

		RS.
51.	Closing breaches in the protective embankment of Thundrcotta... ...	748
52.	Re-constructing protective embankment of Accaduvilly	2,893
53.	Lengthening the Ponnair Anicut near Trickalur	11,015
54.	Strengthening the Shalayanur river embankment	583
55.	Repairing the Areapoliem Tank	280
56.	Constructing Surplus Sluice in Coleroon North Bank in Anagarampettah and Kodaly limits	600

Expenditure without Grant.

57.	Constructing new river embankment at Kotapully Lunkah	423
58.	Darmaveram Tank	3,749
59.	Bookapatam Tank	3,489
60.	Closing breach in Busapully Tank	1,100
61.	Pedda Anantapuram Tank	351
62.	Constructing a new Surplus Weir to the Outi Tank	343
63.	Constructing a Sluice to Chinnacumbaloor Peddy Reddy Tank	389
64.	Repairing Perumbadu Tank	271
65.	Repairing Yanathy Dalapaukanu Tank	356
66.	Repairing Goodoovanjari Tank	339
67.	Repairing Madoor Tank	738
68.	Clearing the bed and closing breaches of old Bangaru Channel	2,599
69.	Restoring damages done to Kasavaram Anicut	382
70.	Tinnanore Tank Supply Channel	562
71.	Constructing temporary ring bund in front of breached portion of anicut Thamasaki	570
72.	Lengthening the Pennair Anicut near Trikalore	11,015
73.	Constructing Surplus Sluice in Coleroon North Bank in Anangarampettah and Kodaly limits	600
74.	Constructing an embankment and erecting five Groynes in the Cauvery river	232
75.	Improving the Arkancottah Channel Head-sluice	1,696

Expenditure in excess of Estimate beyond prescribed limitation.

76.	Eleven Sluices for distributing water from Atilly Canal	1,005
77.	Closing the old Mandave Channel	605
78.	Mid-level Channel	1,145
79.	Lock at Thosipudi	4,200
80.	Improving Samalcottah Canal	13,789
81.	Repairs to Kistna Anicut	3,076
82.	Constructing an Anicut across the Vellaur river near Pelandorai	8,301

Expenditure in excess of Grant beyond prescribed limitation.

83.	Repairs to Byree River Channel	816
84.	Filling deep hole below Dowlaishweram Anicut	3,432
85.	Gravelling and arching Wooden Bridges *via* Ramachendrapur to Madapaud	3,702
86.	Pullair Channel	734
87.	Diverting flood waters from the land of Calanudy Village...	1,069
88.	Madras Water Works	1,060
89.	Chembrumbaukum Tank Project	10,537
90.	Mampaukam Tank	505

Range Officers appear to have been authorized to carry out works in anticipation of sanction to estimates. Estimates for items Nos. 4 and 13 and revised estimates for items Nos. 80 and 82 are stated to have been submitted to the Chief Engineer for Irrigation for sanction. An estimate for No. 5 has been submitted to the Government of India for sanction—*Vide* G.O., No. 1,496, dated 31st May 1875, and an approximate estimate for No. 53 was sanctioned in G.O., No. 2,020, of 16th July 1875. In regard to item No. 72, the District Engineer was authorized to incur "such expenditure as may be necessary in the preparation of materials for the Ponnair Anicut Extension"—*Vide* G.O., No. 247-B, dated 27th January 1875. The excess in regard to item No. 89 is due to a large sum (Rupees 11,300) having been paid at the end of the year on account of compensation for land taken up in connection with the project.

(Signed) L. CONWAY-GORDON, Captain, R.E.,
Controller of Public Works Accounts.

FORWARDED to the Secretary to Government, Public Works Department, for the information of Government.

(Signed) L. CONWAY-GORDON, Captain, R.E.,
Controller of Public Works Accounts.

Nos. 399 & 400. ORDER THEREON, 16th November 1875, No. 3,285.

IRRIGATION, No. 44.
Account.

THE above is the Controller's Review of the Appropriation and Outlay Accounts of the Irrigation Branch of the Public Works Department for the year 1874-75.

2. Under "Extraordinary" the net allotment for expenditure in India was Rupees 7,98,385, of which Rupees 7,18,032 were utilized. As shown in the accounts the outlay appears as Rupees 6,17,521 from an allotment of Rupees 6,98,385, these results having been arrived at by deducting the refund of Rupees 1,00,000 ordered to be made from "Ordinary" to "Extraordinary" on account of the Madras Water-Supply Project as well as a recovery of Rupees 511 on Capital Account. The unexpended balance is thus shown to be Rupees 80,864.

3. The final grant for expenditure in India under "Ordinary" was Rupees 24,15,615, against which a net outlay of Rupees 26,53,059 is shown to have been incurred. As in the case of "Extraordinary" the adjustment of the Rs. 1,00,000 on account of the Madras Water-Supply Project is provided for, together with other sums enumerated in paragraph 2 of the Controller's review, thus bringing out an excess expenditure of Rupees 2,37,444.

4. The State outlay on Guaranteed Irrigation Works amounted to Rupees 5,287 against a reduced grant of Rupees 9,000. Of the expenditure, Rupees 537 were on land, and Rupees 4,750 on establishment.

5. The appropriation and outlay under the main divisions of the budget having thus been brought under review, His Excellency the Governor in Council will now proceed to consider the results under the various heads of service.

I.—Extraordinary.

6. Under "Works," there was a short outlay of Rupees 59,342. The particular works on which the outlay was less than the grant are enumerated in paragraph 4 of the Controller's note, and the reasons which have been assigned for non-utilization of funds are also mentioned. Scarcity of boats for the conveyance of materials in the Godavery and the concentration of all available resources on emergent works in the Nellore district have been assigned as reasons for short outlay on budget items 3 and 13.

7. The explanations are accepted as satisfactory, as well as that offered in connection with budget item 23.

8. No explanations have been afforded by the officers concerned as to the short outlay on budget items 7, 9, and 31. This should now be done.

9. Under "Establishment" and "Tools and Plant" the short outlay was Rupees 14,058 and Rupees 8,568, respectively.

II.—Ordinary Capital.

10. Under "Works," there has been an excess outlay of Rupees 53,055.

11. As the *accounts* of outlay have not been submitted, the incidence of this excess is not ascertainable. A portion of the amount, however, (Rupees 10,537) is explained to be due to payments for compensation for land on account of the Chembrumbaukum Tank Project for which no budget provision was made. The Superintending Engineer, Chingleput, will explain the omission.

12. The outlay under "Establishment" was Rupees 54,963 in excess of the grant, and that on Tools and Plant Rupees 37,058 less than grant. The remarks of the Controller under these heads explain the differences.

Ordinary Revenue.

13. The grant and outlay under "Maintenance and Repairs" show a close correspondence, and the result may be regarded as satisfactory.

14. The figures under "Establishment" and "Tools and Plant" and under "Receipts" do not call for special remark.

15. The Controller brings forward ninety items which are held to be objectionable under the budget rules.

They are classified as follow :—

	Items.	Amount. RS.
Without Estimate	56	60,877
" Grant	19	29,204
In excess of Estimate	7	32,121
" of Grant	8	21,855

16. The attention of District Engineers was called in paragraph 9 of the orders* on the accounts of the previous year to the necessity of estimates being made out and sanctioned when practicable before the close of the year. From the large number of works which is now brought forward as objectionable for want of sanctioned estimates,

* G.O., No. 2,870, dated 8th October 1874.

sufficient attention does not appear to have been given to the instructions issued. It is noticed that for a few of the items only is any explanation given of the causes of expenditure contrary to rule. This is probably due to want of information on the subject in the Controller's Office.

17. In future, the Controller will arrange for explanation on each item being furnished by local officers, before the Review of the Appropriation and Outlay Accounts is laid before Government. His Excellency the Governor in Council will then be in a position to pass such orders as may be required.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 401. (DOCKET No. 3,286, dated 16th November 1875.)

COPY of the above forwarded to the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 402. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 9th November 1875, No. 605 :—

IN continuation of my letter, dated the 2nd instant, No. 593, I have the honor to submit the Review of the Revenue Account of the Madras Railway for the second-half of 1874.

2. The following points in the preparation of this review call for remark :—

Table E I S.—The sum of the train mileages hauled by the different classes of engines does not correspond with the total, as the latter includes miscellaneous mileage, whereas the details for classes show the traffic train mileage only.

Note to Table D I.—The average numbers of vehicles in trains work out as follow :—

Passenger trains	7·878 Vehicles.
Goods „	19·876 „
Mixed „	14·661 „

A considerable number of the passenger trains are private specials : hence the small average number of vehicles. The Examiner points out that to divide the mileage of mixed trains according to the method laid down in the standard form would throw an undue proportion of the expenses on the passenger traffic. The trains have, therefore, been considered as goods and mixed only ; and, as it has been found impossible to arrive at any satisfactory conclusion as to the number of vehicles which should be held to constitute a passenger train, the mileage of mixed trains has been divided in the proportion of the average numbers of coaching and goods vehicles composing those trains. The result gives a fair distribution of the charges, and is considered to be the best division that can, under the circumstances, be adopted. I am of opinion that this

method gives results more in accordance with those obtained for a line (such as the South Indian) where mixed trains only are run. If, in cases where goods and mixed trains are run, it is considered necessary to assume an average load for passenger trains, it would appear proper, for the purposes of a fair comparison, to assume average loads for both passenger and goods trains where the mileage is entirely that of mixed trains. Such a procedure would, however, at once appear to unduly favor goods traffic, as in nearly all cases passenger trains have fewer vehicles, and those of a lighter description, than goods trains. The present method of dividing expenses on the South Indian, with mixed trains only, and on the Madras Railway where goods and mixed have to be dealt with, is more favorable to passenger traffic on the South Indian than on the Madras line. In a mixed train the haulage of a ton gross of passenger traffic is, if anything, less than that of goods, as a considerable amount of shunting takes place with goods wagon, whereas passenger carriages run straight through the journey. I would beg to suggest that in all cases the mileage of mixed trains should be divided in the proportion of the average numbers of vehicles of coaching and goods composing these trains; or, if greater accuracy is desired, the division might be made in the proportion of the vehicle mileage × average weight of vehicle and load (derived from M.I.), that is to say, in the proportion of the estimated ton mileages of coaching and goods in mixed trains. Either of these methods would have the advantage of doing away with the present fictitious train mileage, the correct total mileage being accounted for at once in all calculations.

REVIEW OF THE REVENUE ACCOUNT OF THE MADRAS RAILWAY FOR THE HALF-YEAR ENDED 31ST DECEMBER 1874.

Table A.—General Statement of working of half-year ended 31st December 1874.

I.—Description of Railway worked.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Gauge of Railway.	Length sanctioned.	Open mileage at the end of the half-year.				Mean Mileage worked.	Number of Stations open at the end of the half-year.	Average distance between stations.	Total length of the following gradients:—			Steepest gradient worked by.			
												Fixed power.		Locomotives.	
		Single.	Double.	Total.	Sidings.				1/100 and less.	1/101 to 1/200	1/201 to 1/300	Length.	Inclination.	Length.	Inclination.
FT. IN.	MILES.	MS.	MS.	MS.	MS.	MILES.		MILES.	M. CHS.	M. CHS.	M. CHS.			M. CHS.	
5 6	856¼	853¾	3½	856¼	89½	856¾	83	10·45	66 32	208 52	125 60	...	...	0 64	1 in 60

II.—Financial Results.

17	18	19	20	21	22	23	24	25	26
Total Capital authorized to be raised.	Total Capital paid up to end of the half-year.	Total Capital withdrawn to end of half-year.	Total Capital expended on open mileage, inclusive of Rolling Stock.	Cost per Mile open.	Earnings.	Expenses.	Profits.	Percentage of Profits on paid up Capital.	Percentage of Profits on Capital expended on open mileage, inclusive of Rolling Stock.
£	£	£	£	£	RS.	RS.	RS.		
10,812,298	10,166,628	10,066,692	9,710,168	11,334	29,48,829	19,77,273	9,71,556	·878	·917

III.—Summary of General Results.

27	28	29	30	31	32	33	34	35	36	37
—	Coaching.			Goods.			Total including Sundries but excluding Steam Boat.			Total including Sundries and Steam Boat.
	Total.	Per Passenger Train Mile.	Per mean Mile open per Week.	Total.	Per goods Train Mile.	Per mean Mile open per Week.	Total.	Per total Train Mile.	Per mean Mile open per Week.	
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Earnings ...	11,99,779	3·448	53·860	16,37,263	2·685	73·500	29,48,829	3·079	132·379	29,48,839
Expenses ...	6,35,834	1·827	28·544	12,46,612	2·045	55·963	19,77,273	2·065	88·764	19,77,273
Profits	5,63,945	1·621	25·316	3,90,651	·640	17·537	9,71,556	1·014	43·615	9,71,556
Percentage of expenses to earnings.	52·995	...	...	76·140	...	...	67·053	...	...	67·052

IV.—Traffic Earnings.

38	39	40	41	42	43
Description.	Passengers or Tons of Goods carried. — Number.	Passengers or Tons of Goods carried. — Per-cent. of Total Number and Total Tonnage.	Earnings. — Amount.	Earnings. — Per-cent. of Total Earnings from Coaching and from Goods.	Per-centage of Total Earnings contributed by each description of Traffic.
			RS.		
Coaching — Passengers — 1st-class	8,089	·58	61,275	5·11	40·69
Coaching — Passengers — 2nd ,, ...	27,751	1·97	57,441	4·79	
Coaching — Passengers — 3rd ,, ...	1,078,717	76·69	8,57,464	71·47	
Coaching — Passengers — 4th ,, ...	292,029	20·76	1,18,790	9·90	
Coaching — Miscellaneous	...	...	1,04,809	8·73	
Total ...	1,406,586	100·00	11,99,779	100·00	
Less outstandings irrecoverable ...	...	...	...	...	
Net Total ...	...	...	11,99,779	...	
	TONS.				
Goods — General Merchandize — Special	90,294	45·70	5,68,697	34·73	55·52
Goods — General Merchandize — 1st-class	67,043	33·93	5,25,350	32·08	
Goods — General Merchandize — 2nd ,, ...	21,063	10·66	2,26,843	13·85	
Goods — General Merchandize — 3rd ,, ...	10,537	5·33	1,44,247	8·81	
Goods — General Merchandize — 4th ,, ...	3,776	1·91	76,551	4·68	
Goods — General Merchandize — 5th ,, ...	1,888	·96	35,488	2·16	
Goods — Military Stores	1,970	1·00	42,350	2·60	
Goods — Railway Materials	1,011	·51	6,030	·37	
Goods — Minerals	...	...	...	...	
Goods — Miscellaneous	...	...	11,707	·72	
Total ...	197,582	100·00	16,37,263	100·00	
Less outstandings irrecoverable ...	...	...	...	...	
Net Total ...	...	...	16,37,263	...	
Sundries, including Electric Telegraph...	...	...	1,11,787	...	3·79
Total, Railway Earnings ...	...	...	29,48,829	...	100·00
Steam Boat Traffic	...	...	...	...	...
Total, including Steam Boat ...	...	...	29,48,829	...	...

V.—Working Expenses.

44	45	46	47	48	49	50	51	52	53
	Maintenance.	Locomotive	Carriage and Wagon.	Traffic.	General.	Special and Miscellaneous.	Total Railway Expenditure.	Steam Boat Expenses.	Total including Steam Boat.
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Amount	6,30,366	6,64,179	1,51,398	3,03,395	1,91,037	36,898	19,77,273	...	19,77,273
Per-centage of expenses of each department.	31·88	33·59	7·66	15·34	9·66	1·87	100·00	...	...

VI.—Haulage and Working.

54	55	56	57	58	59	60	61	62	63	64	65	66
Train Mileage.			Vehicle Mileage (exclusive of Brake Vans.)					Gross Ton Mileage (Freight and dead Weight.)				
			Run for Public Traffic.					For Public Traffic.				
Traffic.	Miscellaneous.	Total.	Coaching.	Goods.	Total.	Miscellaneous.	Total including Miscellaneous.	Coaching.	Goods.	Total.	Miscellaneous (for Revenue purposes.)	Total including Miscellaneous.
957,623	67,143	1,024,766	4,939,262	9,369,062	14,308,324	325,189	14,633,513	53,128,763	114,902,871	168,031,634	5,696,369	173,728,003

VII.—Average Composition and Weight of Trains.

67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83
	Composition.													Weight.		
	Coaching Vehicles.									Goods Vehicles.						
Nature of Trains.	1st-Class.	2nd-Class.	3rd Class.	4th-Class.	Carriage Trucks.	Horse Boxes.	Luggage Vans.	Post Office Vehicles.	Brake Vans.	Goods Vehicles.	Cattle Vans.	Mineral Trucks.	Brake Vans.	Freight or live load.	Dead load exclusive of Engines and Tenders and Brakes.	Total.
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	Tons.	Tons.	Tons.
Passenger ...	0·763	0·961	3·700	0·198	0·043	0·003	0·379	0·117	0·258	0·963	0·020	...	0·474	9·760	44·862	54·622
Goods	0·024	0·033	0·277	0·011	0·046	0·089	0·223	0·023	0·196	18·121	0·147	...	0·686	59·536	110·930	170·466
Mixed	0·722	1·022	3·029	0·670	0·101	0·320	0·307	0·299	0·337	7·256	0·102	...	0·509	30·029	84·065	114·094

VIII.—Average loads of Vehicles.

84	85	86	87	88	89	90
			Average Weight			
Details.	Average carrying capacity.	Average contents of each Vehicle.	Of each Vehicle.	Of Freight.	Total.	Proportion per cent. of Freight to Dead Weight.
	No.	No.	Tons.	Tons.	Tons.	
Coaching—						
1st-Class	12·874	1·868	6·700	0·163	6·863	2·433
2nd „	36·753	2·829	6·759	0·247	7·006	3·654
3rd „	49·329	24·440	6·103	1·527	7·630	25·021
4th „	50·000	22·843	6·000	1·427	7·427	23·783
Carriage trucks	1·500	0·310	5·055	0·273	5·328	5·401
Horse boxes	3·000	1·148	7·090	0·502	7·592	7·080
Luggage vans	4·027 Tons.	0·799 Tons.	7·231	0·799	8·030	11·050
Post Office vehicles	...	0·150 „	6·835	0·150	6·985	2·195
Goods—						
Goods vehicles	6½ Tons.	3·241 „	5·809	3·241	9·050	55·793
Cattle vans	6½ „	0·811 „	6·075	0·811	6·886	13·350
Mineral trucks	...	...	...	...	...	...

TABLE B.

Statement showing in comparison the Coaching Traffic of the half-years ending 31st December 1873 and 31st December 1874.

Details.	Number.		Average fare per unit per mile.		Receipts.		Average Mileage.		Total unit mileage.	
	2nd half, 1873.	2nd half, 1874.	2nd half, 1873.	2nd half, 1874.	2nd half, 1873.	2nd half, 1874.	2nd half, 1873.	2nd half, 1874.	2nd half, 1873.	2nd half, 1874.
			PIES.	PIES.	RS.	RS.				
First-class Passengers—										
Single journey	2,931	3,342	15·211	14·234	42,088	37,450	181·26	151·17	531,261	505,213
Excess fares	...	...	...	...	392	402	...	...	5,013	5,414
Return journey	2,908	3,452	9·500	8·967	20,052	21,577	139·36	133·82	405,264	461,950
Troops and Police	31	55	13·881	15·307	797	1,030	355·61	234·89	11,024	12,919
Total ...	5,870	6,849	12·765	11·779	63,329	60,459	162·28	143·83	952,562	985,496
Season ticket passengers ...	2,200	1,240	7·030	8·150	1,611	815	799·93	718·45	43,996	22,272
Second-class—										
Single journey	17,880	20,099	5·626	5·502	40,651	38,662	77·58	67·41	1,387,233	1,348,939
Excess fares	...	...	...	...	335	436	...	...	9,892	22,316
Return journey	4,256	4,580	4·065	4·265	12,826	14,504	142·35	142·53	605,850	652,784
Troops and Police	306	472	6·747	6·769	2,413	3,140	224·39	188·67	68,665	89,054
Total ...	22,442	25,151	5·211	5·155	56,225	56,742	92·31	84·01	2,071,640	2,113,133
Season ticket passengers ...	2,840	2,600	3·047	3·045	795	699	705·56	678·04	50,095	41,073
Third-class—										
Single journey	945,934	961,275	3·104	3·084	7,54,928	7,36,943	49·37	47·59	46,595,194	45,887,619
Excess fares	...	...	...	...	2,746	5,1[illegible]1	...	...	150,665	298,266
Return journey	98,492	103,404	1·89	1·983	83,979	89,612	86·54	83·39	8,523,222	8,674,336
Troops and Police	10,698	11,038	3·218	3·312	26,969	25,809	150·43	135·53	1,609,272	1,495,962
Total ...	1,055,124	1,078,717	2·927	2·921	8,68,622	8,57,465	51·00	52·24	56,97[illegible],353	56,356,183
Season ticket passengers ...	...	...	...	...	...	...	...	...	...	...
Fourth-class—										
Single journey	268,477	292,029	2·029	2·023	1,08,074	1,18,790	38·09	38·61	10,227,123	11,275,552
Excess fares	...	...	...	...	...	...	...	...	...	...
Return journey	...	...	...	...	...	...	...	...	...	...
Troops and Police	...	...	...	...	...	...	...	...	...	...
Total ...	268,477	292,029	2·029	2·023	1,08,074	1,18,790	38·09	38·61	10,227,123	11,275,552
Season ticket passengers ...	...	...	...	...	...	...	...	...	...	...
Total—										
Single journey	1,235,222	1,279,745	...	...	9,45,741	9,31,845	47·63	46·11	58,840,816	59,017,323
Excess fares	...	...	...	...	3,473	5,939	...	...	165,570	326,026
Return journey	105,656	111,436	...	...	1,16,857	1,25,693	90·24	87·85	9,534,336	9,789,070
Troops and Police	11,035	11,565	...	...	30,179	29,979	153·05	138·16	1,688,961	1,597,935
Total ...	1,351,918	1,402,746	...	...	10,96,250	10,93,456	51·95	50·42	70,229,683	70,730,354
Season ticket passengers ...	5,040	3,840	...	...	2,406	1,514	746·75	691·09	94,091	66,345
	Ton miles.	Ton miles.								
Passengers' Luggage	55,542	61,059	57·878	58·031	16,743	18,497			...	...
Military Baggage	25,740	16,490	28·606	32·160	3,835	2,762			...	...
	No.	No.								
Public ... Carriages	339	369	26·387	25·820	9,088	9,038			66,126	67,206
Public ... Horses	1,360	1,342	14·653	14·619	21,722	20,935			284,629	274,937
Public ... Dogs, &c.	1,537	1,648	1·665	1·668	2,156	2,160			248,641	248,574
Military ... Carriages	...	2	...	29·955	...	127			...	814
Military ... Horses	63	54	16·279	13·801	1,560	1,137			18,282	15,817
Military ... Dogs, &c.	67	47	·510	0·371	74	23			27,812	11,894
	Ton miles.	Ton miles.								
Parcels	132,550	140,979	60·693	60·725	41,900	44,588			...	...
	Train mils	Train ms.	RS.	RS.						
Special trains	3,574	877	7·467	4·981	26,679	4,368			...	...
Miscellaneous	...	...	...	...	21	124			...	...
Post Office ... Haulag and hire of Post Office Vehicles.	...	...	...	...	...	...			Approximate Ton Mileage.	
Post Office ... Special trains ...	...	...	...	...	...	...			...	...
Post Office ... Parcels	...	...	...	...	1,050	1,050			38,340	33,667
Total ...					12,23,474	11,99,779				
Less outstandings irrecoverable ...					...	...				
Net Total ...					12,23,474	11,99,779				

TABLE C.

Statement showing in comparison the Goods Traffic of the half-years ending 31st December 1873 and 31st December 1874.

Details.	Ton Miles.				Average rate per Ton per Mile.		Receipts.		Average Mileage.	
	2nd-half, 1873.		2nd-half, 1874.		2nd-half 1873.	2nd-half 1874.	2nd-half 1873.	2nd-half 1874.	2nd-half 1873.	2nd-half 1874.
	Up.	Down.	Up.	Down.						
	TONS.	TONS.	TONS.	TONS.	PIES.	PIES.	RS.	RS.		
MERCHANDIZE, GENERAL—										
Special	9,933,875	4,858,501	9,698,267	4,412,138	8 08	7·73	6,22,120	5,68,697	163·45	156·27
1st-class	5,061,026	5,191,762	5,376,497	4,106,150	10·75	10·63	5,73,769	5,25,350	154 03	141·44
2nd "	869,666	2,182,330	898,092	2,301,526	13·60	13·61	2,16,151	2,26,843	151·05	151·91
3rd "	644,888	828,219	912,348	724,533	16·98	16·92	1,30,284	1,44,246	159·76	155·34
4th "	710,323	69,532	583,959	98,997	21·95	21·52	89,166	76,551	201·93	180·87
5th "	297,561	138,799	124,192	84,514	32·27	32·64	73,349	35,488	165·16	110·54
Total ...	17,517,339	13,269,143	17,593,355	11,727,858	10·63	10·32	17,04,839	15,77,175	159 52	150·67
MILITARY STORES—	540,604	55,105	488,506	36,666	17·68	15·48	54,864	42,350	265·35	266·58
RAILWAY MATERIALS FOR CONSTRUCTION—	155,572	25,325	78,542	102,587	4·00	6·39	3,775	6,030	238·65	179·16
MINERALS—										
For the Public	...	...	...	...	...	...	...	...	...	...
" the Company (*Construction only*)	...	...	...	...	...	...	...	...	...	...
TOTAL GOODS ...	18,213,515	13,349,573	18,160,403	11,867,111	10·81	10·39	17,63,478	16,25,555	161·03	151·97
STORES CARRIED FREE FOR REVENUE—	861,106	456,287	664,832	424,914	...	...	...	...	111·72	137·31
	No.		No.		Average rate per Ton Mile.				Estimated total Ton Mileage.	
LIVE STOCK—										
Horses	246		126		17·459	16·938	2,925	1,008	32,168	11,426
Cattle	526		499		16·246	20·249	1,774	1,402	20,966	13,294
Sheep, &c.	3,1!3		3,376		25·099	28·363	948	958	7,252	6,485
MILITARY LIVE STOCK—										
Horses	528		343		16·695	16·455	6,042	4,248	69,434	49,565
Cattle	5		102		19·136	12·249	60	353	602	5,533
Sheep, &c.	...		65		...	22·364	...	41	...	352
RENTS AND DEMURRAGE, WHARFAGE, &c.—	...		...		...	...	2,615	3,413	...	...
INTEREST ON OUTSTANDING BILLS—	...		...		...	...	...	285	...	...
MISCELLANEOUS—	...		...		...	...	...	...	...	...
TOTAL ...					...	...	17,77,842	16,37,263		
Less outstandings irrecoverable					...	...	...	...		
NET TOTAL ...					...	...	17,77,842	16,37,263		

TABLE C.—I.

Comparative Statement showing the Weight and Earnings of the Principal Commodities carried during the half-years ending 31st December 1873 and 31st December 1874.

Description.	Quantity.		Receipts.		Increase in quantity.	Decrease in quantity.	Increase in receipts.	Decrease in receipts.
	2nd half 1873.	2nd half 1874.	2nd half 1873.	2nd half 1874.				
	TONS.	TONS.	RS.	RS.	TONS.	TONS.	RS.	RS.
Baggage (Military)	70	35	1,805	1,312	...	35	...	493
Ballast and Stores	3,210	1,626	7,537	4,914	...	1,584	...	2,623
Bamboos	2,298	1,986	10,004	8,474	...	312	...	1,530
Beer	335	293	5,656	5,070	...	42	...	586
Betel-nuts	3,652	3,318	39,700	33,522	...	334	...	6,178
Brass and Copper	441	524	5,600	6,652	83	...	1,052	...
Charcoal, Coke, and Coal ...	478	160	3,002	656	...	318	...	2,346
Chillies	1,269	1,596	10,357	12,769	327	...	2,412	...
Chunam and Lime	507	477	1,372	1,846	...	30	474	...
Cloths and Piece Goods ...	3,020	3,083	67,760	55,071	63	...	...	12,689
Cocoanuts	1,523	1,267	10,244	9,572	...	256	...	672
Coffee	981	894	12,102	11,032	...	87	...	1,070
Commissariat Stores	1,641	1,195	34,175	21,939	...	446	...	12,236
Cotton, loose	1,939	1,731	21,119	14,088	...	208	...	7,031
Do. A, pressed	...	...	...	...	...	...	...	...
Do. B, do.	138	...	3,739	...	..	138	...	3,739
Do. C, do.	2	53	21	597	51	...	576	...
Do. D, do.	2,090	2,776	37,082	47,540	686	...	10,458	...
Do. E, do.	7,148	7,487	1,22,668	115,283	339	...	...	7,385
Dye or Redwood	715	1,529	3,877	7,849	814	...	3,972	...
Firewood	3,875	5,496	12,896	16,460	1,621	...	3,564	...
Fruits and Vegetable	2,292	2,985	19,472	26,447	693	...	6,975	...
Furniture	156	117	3,228	2,493	...	39	...	735
Ghee	686	582	12,469	8,679	..	104	...	3,790
Gram	11,073	13,417	75,279	83,603	2,344	...	8,324	...
Grains	4,742	6,197	42,113	38,068	1,455	...	...	4,045
Ground-nuts	593	749	3,267	3,167	156	...	...	100
Gunnies	2,254	2,205	24,997	22,777	...	49	...	2,220
Hay	11	8	76	57	...	3	...	19
Indigo	442	516	6,703	7,447	74	...	744	...
Iron of all kinds	2,799	3,139	34,227	35,700	340	...	1,473	...
Jaggery	5,265	4,697	40,173	34,442	...	568	...	5,731
Luggage	493	443	9,589	8,081	...	50	...	1,508
Oil of all kinds...	3,133	2,947	29,170	25,299	...	186	...	3,871
Ordnance Stores	534	741	18,885	19,100	207	...	215	...
Paddy	1,925	2,780	6,309	11,179	855	...	4,870	...
Pitch, Tar, and Asphalte ...	103	61	1,515	886	...	42	...	629
Potatoes	1,909	1,203	26,012	11,851	...	706	...	14,161
Powder and Ammunition (combustibles)	47	50	2,962	3,307	3	...	345	...
Raggy	11,680	9,423	81,065	68,601	...	2,257	...	12,464
Rice	43,287	40,602	3,08,041	2,80,659	...	2,685	...	27,382
Salt	23,101	22,675	1,54,436	1,50,160	.	426	...	4,276
Salt-fish...	1,063	1,773	9,127	14,729	710	...	5,602	...
Salt-petre	254	477	3,358	7,292	223	...	3,934	...
Seeds of all kinds	5,180	9,389	36,691	56,441	4,209	...	19,750	...
Skins	3,516	3,350	51,971	41,252	...	166	...	10,719
Sugar of all kinds	2,210	2,637	17,058	22,719	427	...	5,661	...
Sundries	13,391	12,735	176,373	141,645	...	656	...	34,728
Tamarind	3,442	2,772	18,432	13,953	...	670	...	4,479
Timber	8,826	5,890	53,012	32,773	...	2,936	...	20,239
Tobacco	2,364	3,264	14,675	16,727	900	...	2,052	...
Twist	2,227	2,166	49,758	35,854	...	61	...	13,904
Wine and Spirituous Liquors ...	916	1,055	18,545	19,492	139	...	947	...
Total ...	1,95,246	1,96,571	17,59,704	16,19,526	1,325	...	...	1,40,178

TABLE D.

Statement of Mileage maintained by Revenue.

Details.	2nd-half of 1873. Departmentally.	2nd-half of 1873. By Contract.	2nd-half of 1873. Total.	2nd-half of 1874. Departmentally.	2nd-half of 1874. By Contract.	2nd-half of 1874. Total.	2nd-half of 1874. Total Increase.	2nd-half of 1874. Total Decrease.
	MILES.	MILES.	MILES.	MILES.	MILES.	MILES.	MILES.	MILES.
1. 2. 3. Mean miles of line maintained by Revenue. Single ...	$831\frac{3}{8}$	...	$831\frac{3}{8}$	828	...	828	...	$3\frac{3}{8}$
Double ...	...	...	...	$3\frac{3}{8}$	...	$3\frac{3}{8}$	$3\frac{3}{8}$	..
Total ...	$831\frac{3}{8}$	...	$831\frac{3}{8}$	$831\frac{3}{8}$	...	$831\frac{3}{8}$	...	...
4. Mean miles of sidings maintained	82	...	82	$85\frac{1}{2}$	...	$85\frac{1}{2}$	$3\frac{1}{2}$	...
Total ...	$913\frac{3}{8}$	...	$913\frac{3}{8}$	$916\frac{7}{8}$	...	$916\frac{7}{8}$	$3\frac{1}{2}$	...
5. Mean miles of single track including sidings ...	$913\frac{3}{8}$	...	$913\frac{3}{8}$	$920\frac{1}{4}$	...	$920\frac{1}{4}$	$6\frac{7}{8}$	...

TABLE D—I.

Statement of Train Mileage.

Details.		Trains Miles run. Traffic Department.	Trains Miles run. Locomotive Department.	Trains Miles run. Maintenance Department.	Trains Miles run. Total.	Hours of Assisting Engines.	Hours of Shunting, Piloting, &c.	Hours of Miscellaneous Services.
2nd-half, 1873 ...	Passenger ...	4,968	...	...	...	...	...	...
	Goods	219,463	14,401	38,376	...	...	...	...
	Mixed... ...	750,414	...	...	...	...	...	...
	Total ...	974,845	14,401	38,376	1,027,622	36	22,904	1,904
2nd-half, 1874 ...	Passenger ...	9,385	...	...	...	...	...	...
	Goods	218,390	13,574	53,569	...	...	...	...
	Mixed... ...	729,848	...	...	...	...	...	...
	Total ...	957,623	13,574	53,569	1,024,766	18	25,104	1,996
Increase in 1874 ...	Passenger ...	4,417	...	...	...	...	...	...
	Goods... ...	...	...	15,193	...	...	...	...
	Mixed... ...	...	...	...	...	...	...	...
	Total ...	4,417	...	15,193	...	...	2,200	92
Decrease in 1874 ...	Passenger ...	...	...	...	...	...	...	...
	Goods... ...	1,073	827	...	...	...	...	...
	Mixed... ...	20,566	...	...	...	...	...	...
	Total ...	21,639	827	...	2,856	18	...	...

There being practically no passenger trains run in the half-year, the mileage of mixed trains has been divided in accordance with the foot-note of the standard form in terms of the number of coaching and goods vehicles attached on an average to a mixed train. Had the division been made upon the basis of the information given in Table A—VII., the expenses would have been most unduly thrown upon the passenger traffic, and the analysis would have been useless as showing a fair incidence of the cost of the traffic.

	RS.
Passenger train mileage	9,385
Proportion of mixed train mileage due to passengers	338,563
Total ...	347,948
Goods train mileage	218,390
Proportion of mixed train mileage due to goods	391,285
Total ...	609,675

TABLE E.

Maintenance of Way, Works, and Stations.

—	2nd-half of 1873.	2nd-half of 1874.		
	Total.	Total.	Increase.	Decrease.
Mileage of line maintained	$831\frac{3}{8}$	$831\frac{3}{8}$	...	...
Mileage of single track, including sidings ...	$913\frac{3}{8}$	$920\frac{1}{4}$	$6\frac{7}{8}$	...
Train mileage	974,845	957,623	...	17,222
Ton mileage	173,713,670	173,728,003	14,333	...

Details.	2nd-half of 1873.	2nd-half of 1874.			Per mile of Line maintained.	Per mile of track including sidings.	Per Train Mile.	Per 1,000 Ton Miles.
	Total.	Total.	Increase.	Decrease.				
General Superintendence—	RS.	RS.	RS.	RS.	RS.	RS.	AS.	RS.
Engineers' Salaries and Allowances ...	69,421	66,910	...	2,511	80·481	72·709	1·118	0·385
Subordinate Superintendents' Salaries and Allowances, including Overtime	25,188	24,058	...	1,130	28·938	26·143	0·402	0·138
Office Expenses	29,177	28,334	...	843	34·081	30·790	0·473	0·163
Maintenance and Renewal of Permanent-way—								
Wages	1,52,800	1,66,143	13,343	...	199·841	180·541	2·776	0·956
Materials	1,59,869	1,11,868	...	48,001	134·558	121·563	1·870	0·643
Repairs of Bridges, &c.—Wages and Materials—								
Bridges and Tunnels	59,735	1,17,843	58,108	...	141·745	128·055	1·969	0·678
Miscellaneous	53,082	58,284	5,202	...	70·106	63·335	0·973	0·335
Repairs of Stations and Buildings—Wages and Materials—								
Repairs of all except Staff Quarters ...	33,919	34,586	667	...	41·601	37·583	0·579	0·200
Do. of Staff Quarters	8,058	10,338	2,280	...	12·435	11·234	0·172	0·060
Maintenance by Contract—								
Amount paid to Contractors	...	...	...	...	...	...	...	...
Materials supplied by the Company ...	...	...	...	...	...	...	...	...
Unclassified Expenditure—								
Plantations	...	...	...	...	...	...	...	...
Tools and Plant	8,001	12,002	4,001	...	14·435	13·041	0·200	0·070
Loss on Stores, &c.	...	...	...	...	...	...	...	...
Total ...	5,99,250	6,30,366	83,601	52,485	758·221	684·994	10·532	3·628
Less ...	...	...	...	...	...	...	...	...
Net Total ...	5,99,250	6,30,366	31,116	...	758·221	684·994	10·532	3·628

TABLE E.—I.

Maintenance of Way.

Rails.

	Details.	Double headed. Weighing 65 lbs.	Double headed. Weighing 75 lbs.	Double headed. Weighing 84 lbs.	Double headed. Steel, 75 lbs.	Bridge. Weighing 75 lbs.	Contractors. Weighing 35 lbs.	Total.
		M.C.F.	M.C.F.	M.C.F.	M.C.F.	M.C.F.	M.C.F.	M.C.F.
1.	Miles of rail in way including sidings...	675·64	1042·61	139·65	46·60	0·17	0·14	1,904·82
2.	Average age of rails in way at the middle of the half-year ...	13·50	7·75	18·00	4.50	11·00	7·00	10·25
3.	Rails inverted ... Number	594	371	328	...	...	...	1,293
	Rails inverted ... Miles	2·25	1·41	1·24	...	...	...	4·90
4.	Proportion inverted per mile of (1) rail	·003	·001	·008	...	...	...	·00257
5.	Rails renewed ... Number	190	99	220	39	...	...	548
	Rails renewed ... Miles...	·72	·37	·83	·15	...	...	2·07
6.	Proportion renewed per mile of (1) rail	·001	·0003	·005	·003	...	...	·00108
7.	Average number of tons hauled over each kind of rail in the half-year	241,283	152,026	396,938	169,083	399,296	...	202,000
8.	Thousands of tons hauled on an average over each kind of rail during the average age of rails in way (2)... ...	6,167	2,369	14,002	1,451	8,648	...	4,554

TABLE E—II.

Maintenance of Way.

Sleepers.

	Details.	Wood. Teak. 16′×12″×6″	Wood. Teak. 14′×12″×6″	Wood. Teak. 12′×12″×6″	Wood. Teak. 10′×12″×6″	Wood. Teak. 10′×10″×5″	Wood. Jungle. 10′×12″×6″	Wood. Jungle. 10′×10″×5″	Wood. Total.	Creosoted Pine.	Iron. Greaves patent iron bowls, 84 lbs.
1.	Number of Sleepers in way including sidings	1,123	834	14,881	2,125	937	1,978	200,914	222,792	3,356	2,697,001
2.	Average age of Sleepers in way at the middle of the half-year ...	6¾ years	7 years	6¼ years	6¼ years	6¼ years	3½ years	4½ years	4½ years	...	8¼ years
3.	Number renewed	10	19	205	35	29	129	12,478	...	...	2,421
4.	Do. per cent. of (1)	0·89	2·27	1·37	1 64	3·09	6·52	6·21	...	...	0·09

TABLE F.

Locomotive Department Expenses.

—	2nd-half, 1873. Total.	2nd-half, 1874. Total.	2nd-half, 1874. Increase.	2nd-half, 1874. Decrease.
Train mileage	974,845	957,623	...	17,222
Ton mileage	173,713,670	173,728,003	14,333	...

Details.	2nd-half, 1873. Total.	2nd-half, 1874. Total.	2nd-half, 1874. Increase.	2nd-half, 1874. Decrease.	Per train mile.	Per 1,000 Ton Miles.
	RS.	RS.	RS.	RS.	AS.	RS.
General Superintendence.—						
Salaries of Superintendents and Assistants, including allowances	4,927	13,552	8,625	...	·227	·078
Do. of Subordinate do. including do. ...	25,909	33,419	7,510	...	·558	·192
Office Expenses	13,626	15,823	2,197	...	·264	·091
Running Expenses.—						
Wages of Drivers and Firemen, including overtime ...	90,377	84,884	...	5,493	1·418	·489
Fuelling, cleaning, and looking after Engines	15,192	15,185	...	7	·254	·087
Contingent Expenses...	1,441	...	...	1,441	...	...
Fuel.—						
Coal	94,795	1,50,528	55,733	...	2·515	·867
Coke	13,234	7,383	...	5,851	·124	·042
Patent Fuel	30,434	3,134	...	27,300	·052	·018
Wood	1,26,710	1,33,855	7,145	...	2·237	·770
Water (including Wages and Stores)	13,616	14,327	711	...	·239	·083
Oil, Tallow, and other Stores	12,726	13,093	367	...	·218	·075
Maintenance and Renewals.						
Wages including overtime	82,697	92,899	10,202	...	1·552	·535
Materials	76,736	86,097	9,361	...	1·439	·496
Payments to other Lines.—						
Unclassified Expenditure—						
Total ...	6,02,420	6,64,179	1,01,851	40,092	11·097	3·823
Less ...	...	...	...	...	...	...
Net Total ...	6,02,420	6,64,179	61,759	...	11·097	3·823

—	Fuel consumed. Coal.	Coke.	Patent Fuel.	Wood.	Average Consumption per train mile. Coal, Coke, and Patent Fuel.	Average Consumption per train mile. Wood.	Average Consumpton per 1,000 ton miles. Coal, Coke, and Patent Fuel.	Average Consumpton per 1,000 ton miles. Wood.
	Tons.	Tons.	Tons.	Tons.	lbs.	lbs.	lbs.	lbs.
Quantity consumed during the 2nd-half of 1873	4,740	414	1,268	28,283	14·756	64·990	82·810	364·709
Do. do. of 1874 ...	5,376	217	130·5	29,878	13·388	69·888	73·797	385·238
Increase in 1874	636	...	...	1,595	...	4·898	...	20·529
Decrease in 1874	...	197	1,137·5	...	1·368	...	9·013	...

TABLE F.—I.

Locomotive Power.

—		Passenger.	Passenger.	Goods.	Tank.	—	Total.
Locomotives ...	1. Wheels coupled	*Nil.*	...	6 wheels and 4 wheels.	4 wheels.	...	...
	2. Weight on driving axle ...	14 tons.	...	10·18 to 12·35 tons.	8·74 to 13·25 tons.	...	...
	3. Total weight in steam, exclusive of tender.	24·75 „	...	27·01 to 34·40 tons.	...	...	...
1. Number of Locomotives erected and made over to Locomotive Department		2	...	104	20	..	126
2. Average number of Locomotives constantly under repairs and renewals		1	...	30	7	...	38
3. Number of Locomotives laid by as spare or hired out to other lines		...	...	...	...	...	...
4. Average number of Locomotives at work, [1-(2 + 3)]		1	...	74	13	...	88
5. Train miles hauled by each class of Locomotives at work (4)		21,716	...	927,210	8,697	...	1,024,766
6. Average train miles hauled by each Locomotive at work (4)—							
Per half-year		21,716	...	12,530	669	...	11,645
Per day		118	...	68	3·6	...	68
7. Weight of coal, &c., used per train mile ...	To be separated if possible, among the classes of Locomotives.	...	...	60·05	...	...	60·05
8. Weight of wood used per train mile		68·26	...	...	69·30	...	62·08
9. Average gross weight of the trains hauled by each class of Locomotives		...	...	...	...	...	*133·52

—	Number of Miles per hour.					
	Passenger Trains.	Goods Trains.	Mixed Trains.			
	HOURS.	HOURS.	HOURS.			
10. Average speed between Stations	21	$18\frac{1}{2}$	$20\frac{1}{4}$	...	...	...
11. Average through speed...	20	17	18	...	...	...

* Exclusive of engine and tender.

TABLE G.

Carriage and Wagon Expenses.

	2nd-half of 1873.	2nd-half of 1874.		
—	Total.	Total.	Increase.	Decrease.
Train mileage	974,845	957,623	...	17,222
Vehicle Mileage. Coaching	5,061,968	4,939,262	...	122,706
Vehicle Mileage. Goods	9,136,075	9,369,062	232,987	...
Total ...	14,198,043	14,308,324	110,281	...

Details.	2nd half of 1873.	2nd half of 1874.			Cost per train mile.	Cost per 1,000 Vehicle miles.
	Total.	Total.	Increase.	Decrease.		
General Superintendence—	RS.	RS.	RS.	RS.	AS.	RS.
Salaries of Superintendents including allowances	920	2,954	2,034	...	·049	·207
Do. of Subordinate do., including do. ...	5,061	7,521	2,460	...	·125	·525
Office expenses	2,532	3,539	1,007	...	·059	·247
Repairs and Renewals of Vehicles and Machinery—						
Coaching Vehicles. Wages, including overtime ...	7,959	10,621	2,662	...	·178	(*a*) 2·150
Coaching Vehicles. Materials	15,247	13,983	...	1,264	·234	(*a*) 2·831
Goods Vehicles. Wages, including overtime ...	15,330	27,747	12,417	...	·464	(*b*) 2·962
Goods Vehicles. Materials	34,127	56,644	22,517	...	·947	(*b*) 6·016
Cleaning and Oiling—						
Labor, including wages of Oilers, &c. ...	7,345	7,624	279	...	·127	·533
Stores	24,416	19,419	...	4,997	·325	1·357
Unclassified Expenditure—	...	1,346	1,346	...	·022	·094
Total ...	1,12,937	1,51,398	44,722	6,261	2·530	10·581
Less ...	...	...	...	...	...	...
Net Total ...	1,12,937	1,51,398	38,461	...	2·530	10·581

(*a a*) Per 1,000 coaching vehicle miles. (*b b*) Per 1,000 goods vehicle miles.

TABLE G.—I.

Repairs and working of Vehicles.

Description of Vehicles.	Average weight in tons.	Average carrying capacity.	Total number constructed to end of half-year.	Repaired and Renewed. Number repaired.	Number renewed.	Total.	Average number constantly under repairs and renewals.	Proportion per cent. constantly under repairs and renewals.	Number laid by as spare or hired out or lent to other lines.	Average number in working order.	Total vehicle mileage.	Average Mileage run per Vehicle. During half-year.	Per day.
	a.	*b.*	*c.*	*d.*	*e.*	*f.*	*g.*	*h.*	*i.*	*k.*	*l.*	*m.*	
Coaching Vehicles—													
Sleeping carriages ...	...	...	4							4	4,504	1,126	6
Saloon do. ...	6·70	...	2							2	...	...	...
First-class do. ...	6·70	18 day and 12 night	15	38	...	38	...	...	...	15	331,077	22,072	120
Double Saloon first-class night carriages.	...	...	4							4	...	...	...
Second class carriages ...	6·88	40	64	53	...	53	...	...	...	64	803,014	10,137	55
do. Post Office ...	6·73	20	...	...	...	...	...	...	...	...	345,754	...	...
Third do. carriages ...	5·90	50 & 60	181	170	...	170	...	...	...	181	1,989,140	10,930	60
Do. do. do. with Brakes.	6·89	30 & 40	30	31	...	31	...	...	...	30	298,101	14,521	79
Third do. Post Office with brakes.	7·10	20	...	...	...	...	...	...	...	...	137,522	...	...
Third-class upper storied.	6·96	80	2	1	...	1	...	...	...	2	39,245	19,622	107
Composite carriages ...	6·70	1st 6, 2nd 20	25	38	...	38	...	...	...	25	304,354	12,174	66
Night composite do. ...	...	...	12				...	...	...	12	184,762	15,397	84
Cooly class carriages ...	6·00	50	40	27	...	27	...	...	...	40	493,609	12,340	67
Engineer's inspection carriage.	...	...	1	...	...	...	...	...	...	1	4,178	4,178	23
Consulting Engineer's carriage.	...	...	1	...	...	...	...	...	...	1	...	...	...
Invalid carriages ...	8·80	12	2	...	...	...	...	...	...	2	1,067	533	3
Carriage Trucks ...	5·06	One four wheeled or 2 two wheeled.	30	5	...	5	...	...	...	30	80,522	2,684	14
Passengers' Luggage Vans.	7·25	2 tons light and 4 tons heavy.	25	22	...	22	...	...	...	25	456,082	18,243	99
Horse Boxes	7·09	3	50	54	...	54	...	...	...	50	253,168	5,063	27
Total Coaching Stock ...	..	...	488	439	...	439	...	...	...	488	5,226,099	10,709	58
Merchandise Vehicles—													
Open goods wagons ...	5·29	All wagons will carry 6½ tons but about half the high sided open wagons have been made to carry 8 tons.	332	5	...	5	...	...	...	332	7,145	246	1
Open sided goods wagon ...	4·93										74,526		
High sided open goods wagons.	5·32		1,823	830	...	830	...	...	...	1,823	7,539,181	4,135	22
High open goods wagons.	4·80		5	5	...	5	...	...	...	5	6,706	1,341	7
Ballast wagons ...	5·00		211	...	1	1	...	...	...	211	5,993	28	·15
Coke do. ...	5·78		388	145	8	153	...	...	...	388	613,262	1,580	8
Cattle do. ...	6·07		35	17	...	17	...	...	...	35	107,392	3,068	17
Road do. ...	6·35		7	1	...	1	...	...	...	7	33,060	4,723	26
Road brake wagon ...	7·37		22	24	...	24	...	...	...	22	327,641	14,893	81
Covered goods wagons ...	6·16		48	34	1	35	...	...	...	48	531,799	11,079	60
Timber trucks ...	4·74		144	41	59	100	...	...	...	144	158,334	1,099	6
Platform trucks ...	...		6	...	...	...	...	...	...	6	...	...	...
Water trucks	...		4	...	...	...	...	...	...	4	...	...	...
Goods brake vans ...	9·75		60	51	...	51	...	...	...	60	772,319	12,872	70
Gunpowder do. ...	7·82		3	...	...	...	...	...	...	3	22,099	7,366	40
Oil Store do. ...	8·72		3	4	...	4	...	...	...	3	25,872	8,624	47
Travelling cranes on trucks.	...		4	...	...	...	...	...	...	4	...	...	...
Total Merchandise Stock ...	...	...	3,095	1,157	69	1,226	...	...	...	3,095	10,225,329	3,634	16
Grand Total ...	...	...	3,583	1,596	69	1,665	258	7·201	...	3,325	15,451,428	...	...

Note.—The Locomotive Superintendent of the Railway Company has been unable to give the average number of each kind of vehicle undergoing repairs and renewals at any one time, column 11 of Form XII. of the Revenue Account; and consequently columns *g* and *h* above are blank, and the prescribed deductions have not been made from *c* before filling up the column *k*.

TABLE G.—II.

Distribution of Vehicle Mileage according to the Traffic carried.

Description of Vehicles.	Mileage run.	Remarks.
Coaching—		
First-class	539,379	
Second do.	762,276	
Third do.	2,305,826	
Fourth do.	493,609	
Carriage Trucks	83,873	
Horse Boxes	253,168	
Luggage Vans	276,683	
Post Office Vehicles	224,448	
Total (paying Vehicle Mileage) ...	4,939,262	
Passenger Brake vans	291,339	
Total including Brakes ...	5,230,601	
Goods—		
Goods Vehicles	9,262,288	
Cattle vans	106,774	
Mineral trucks...	...	
Total (paying Vehicle Mileage) ...	9,369,062	
Goods brake vans	526,576	
Total including brakes ...	9,895,638	
Miscellaneous—		Ton mileage of stores and materials carried.
(*For stores and materials carried free on Revenue Account.*)		
For Locomotive Department (in entire train loads)	106,442	572,590
For Engineering	208,503	514,640
For Stores carried free in ordinary Traffic trains	10,244	2,516
Brake Vans ...	...	...
Total including Brakes ...	325,189	1,089,746
Grand Total ...	15,451,428	...

TABLE H.

Traffic Expenses.

—	2nd-half, 1873. Total.	2nd-half of 1874. Total.	2nd-half of 1874. Increase.	2nd-half of 1874. Decrease.
Train mileage	974,845	957,623	...	17,222
Vehicle mileage. Coaching	5,061,968	4,939,262	...	122,706
Vehicle mileage. Goods	9,136,075	9,369,062	232,987	...
Total ...	14,198,043	14,308,324	110,281	...

Details.	2nd half, 1873. Total.	2nd half of 1874. Total.	2nd half of 1874. Increase.	2nd half of 1874. Decrease.	Cost per Train Mile.	Cost per 1,000 Vehicle Miles.
	RS.	RS.	RS.	RS.	AS.	RS.
SALARIES, WAGES, &c.—						
General Superintendence, including travelling allowances ...	27,608	28,055	447	...	0·469	1·961
Office Establishment and Contingencies	27,087	27,387	300	...	0·458	1·914
Station Staff	1,25,046	1,30,088	5,042	...	2·173	9·092
Train Staff	31,206	33,301	2,095	...	0·557	2·328
FUEL, LIGHTING, WATER, AND GENERAL STORES	45,510	49,223	3,713	...	0·822	3·440
CLOTHING	4,164	9,105	4,941	...	0·152	0·636
PRINTING, STATIONERY, AND TICKETS	25,315	17,310	...	8,005	0·289	1·210
CHARGES FOR DELIVERY AND COLLECTION OF GOODS, &c. ...	...	...	...	...	...	...
MISCELLANEOUS EXPENSES	...	...	...	...	...	...
PAYMENTS TO OTHER LINES—						
Hire of Vehicles	...	...	...	...	...	...
Mileage of Foreign Stock	4,958	8,920	3,962	...	0·149	0·624
Expenses at joint stations	...	6	6	...	...	...
UNCLASSIFIED EXPENDITURE	...	...	...	...	...	...
Total ...	2,90,894	3,03,395	20,506	8,005	5·069	21·205
Less ...	...	...	*Nil.*	...	...	...
Net Total ...	2,90,894	3,03,395	12,501	...	5·069	21·20

TABLE J.

General Charges.

Details.	2nd-half of 1873. Total.	2nd-half of 1874. Total.	Increase.	Decrease.	Cost per Train Mile.
Train Mileage	974,845	957,623	...	17,222	...
	RS.	RS.	RS.	RS.	AS.
HOME EXPENDITURE	35,324	33,977	...	1,347	·568
INDIAN MANAGEMENT—					
Agent's Office, including travelling allowances and Contingencies	27,380	21,043	...	6,337	·352
Auditor's Office do.	30,223	27,396	...	2,827	·458
Account's Office do.	8,936	8,900	...	36	·146
Paymaster's Office do.	18,229	19,137	908	...	·320
Store Department do.	12,136	13,329	1,193	...	·223
Medical Department do.	11,819	12,270	451	...	·205
Rents	4,572	298	...	4,274	·005
Miscellaneous expenses, including Printing and Stationery and Medicine	6,679	5,615	...	1,064	·094
POLICE	11,781	12,502	721	...	·209
ADVERTISING	1,356	439	...	917	·007
ELECTRIC TELEGRAPH—					
Salaries, &c.	29,135	24,574	...	4,561	·411
Maintenance—(Wages and Stores)...	40,049	11,336	...	28,713	·190
GOVERNMENT TELEGRAPH DEPARTMENT FOR RENT, MAINTENANCE, AND INSPECTION	...	...	...	...	...
CLEARING ACCOUNTS WITH OTHER LINES	...	...	...	...	...
UNCLASSIFIED EXPENDITURE	...	221	221	...	·004
Total ...	2,37,619	1,91,037	3,494	50,076	3·192
Less ...	...	...	*Nil.*	...	...
Net Total ...	2,37,619	1,91,037	...	46,582	3·192

TABLE K.

Steam Boat Service.

Details.	2nd-half of 1873. Total.	2nd-half of 1874. Total.	Increase.	Decrease.
	RS.	RS.	RS.	RS.
WORKING VESSELS—				
Salaries and allowances of Officers and Crews				
Loading and unloading vessels				
Pilotage fees				
Contingencies				
REPAIRS—				
Wages				
Materials				
FUEL—	...	*Nil.*	...	...
Fuelling Establishment and Fuelling Vessels				
Coal				
Coke				
Patent Fuel				
Wood				
Miscellaneous Stores				
Steam Traffic Agencies				
Miscellaneous Expenditure				
Contribution to Flotilla Reserve Fund				
Total ...	...	...	...	...
Less ...	...	...	...	...
Net Total ...	...	...	...	...
—	Quantity consumed.	Quantity consumed.	Increase.	Decrease.
	TONS.	TONS.	TONS.	TONS.
Coal	...	...	...	...
Coke...	...	*Nil.*	...	...
Patent Fuel...	...	...	...	...
Wood	...	...	...	...

TABLE L.

Special and Miscellaneous Expenditure.

Details.	2nd-half of 1873.	2nd-half of 1874.		
	Total.	Total	Increase.	Decrease.
	RS.	RS.	RS.	RS.
Law Charges	1,418	9,350	7,932	...
COMPENSATION—				
For goods lost or damaged	609	3,068	2,459	...
" personal injury	...	4,000	4,000	...
" other claims	27	199	172	...
Rates and Taxes	7,785	2,249	...	5,536
Interest on Revenue Balances	...	...	...	...
CONTRIBUTION TO SPECIAL FUNDS—				
Fire Insurance Fund...	20,727	20,727	...	...
Permanent-way Renewal Fund	...	...	...	...
Casualty Fund	...	...	...	...
Total ...	30,566	39,593	14,563	5,536
Less recovered from Insurance Fund ...	246	2,695	2,449	...
Net Total ...	30,320	36,898	6,578	...

ANALYSIS OF CARRYING COST.

TABLE M—I.

Definitions.

The unit of Passenger Traffic	is—1 passenger *plus* free luggage.
,, of Carriages	is—1 carriage.
,, of Horses	is—1 horse.
,, of Luggage	is—1 ton.
,, of Post Office Vehicles	is—1 ,,
,, of Goods	is—1 ,,
,, of Cattle	is—1 ,,

Approximate Weight of Units to be adopted in these calculations.

	CWT.	TONS.
COACHING—		
A 1st-class passenger with free luggage ...	1·75 or	·0875
A 2nd ,, ,, ,, ,, ...	1·75 or	·0875
A 3rd ,, ,, ,, ,, ...	1·25 or	·0625
A 4th ,, ,, ,, ,, ...	1·25 or	·0625
A carriage (average for two and four-wheeled)	6·75 or	·3375
COACHING—(*Concld.*)		
A horse	8·75 or	·4375
A dog	0·20 or	·01
GOODS—		
A head of horned cattle, or a pony or horse ...	5·00 or	·25
A head of sheep, goat, &c.	0·50 or	·025

Data for calculating the incidence of carrying Cost per Unit per Mile for each Class of Passenger Traffic and for Goods, Cattle, and Minerals.

	Details.	Total Mileage of each description of Rolling Stock.	Total Mileage of Units.	Average Contents in Units of each Vehicle.		Average Weight of Rolling Stock in Tons.	Total average Weight including Contents of each Vehicle in Tons.	Proportion per-cent. of Freight to Total Weight.	Ton Mileage.		Total Ton Mileage.	
				No.	Weight in Tons.				Of Freight.	Of Dead Weight.	Excluding Engines and Tenders and Brake Vans.	Including Engines and Tenders and Brake Vans.
		(*a*)	(*b*)	(*c*)	(*d*)	(*e*)	(*f*)	(*g*)	(*h*)	(*i*)	(*k*)	(*l*)
	COACHING—											
1	1st-Class	539,379	1,007,768	1·868	0·163	6·700	6·863	2·375	88,179	3,613,839	3,702,018	...
2	2nd ,, ...	762,276	2,157,196	2·829	0·247	6·759	7·006	3·525	188,755	5,152,223	5,340,978	...
3	3rd ,, ...	2,305,826	56,356,183	24·440	1·527	6·103	7·630	20·013	3,522,262	14,072,456	17,594,718	...
4	4th ,, ...	493,609	11,275,552	22.843	1·427	6·000	7·427	19·213	704,722	2,961,654	3,666,376	...
5	Carriage Trucks	83,873	68,020	0·810	0·273	5·055	5·328	5·124	22,956	423,978	446,934	...
6	Horse Boxes	253,168	290,764	1·148	0·502	7·090	7·592	6·612	127,205	1,794,961	1,922,166	...
7	Luggage Vans	276,683	221,132	...	0·799	7·231	8·030	9·950	221,132	2,000,695	2,221,827	...
8	Post Office Vehicles... ...	224,448	...	...	0·150	6·835	6·985	2·148	33,667	1,534,102	1,567,769	...
9	Total ...	4,939,262	...	...	...	...	...	...	4,908,878	31,553,908	36,462,786	...
10	Passenger Engines and Tenders.	347,948	...	...	...	41·948	...	...	...	14,595,722	...	...
11	Do. Brake Vans ...	291,339	...	...	...	7·106	...	...	...	2,070,255	...	...
12	Total Coaching Ton Mileage ...	...	...	...	...	...	...	...	4,908,878	48,219,885	...	53,128,763
	GOODS—											
13	Goods Vehicles	9,262,288	30,027,514	...	3·241	5·809	9·050	35·812	30,027,514	53,804,630	83,832,144	...
14	Cattle Vans	106,774	86,655	...	0·811	6·075	6·886	11·777	86,655	648,652	735,307	...
15	Mineral Trucks	..	...	...	...	...	...	...	...	...	...	...
16	Total ...	9,369,062	...	...	...	...	...	...	30,114,169	54,453,282	84,567,451	...
17	Goods Engines and Tenders ...	609,675	...	...	...	41·948	...	...	...	25,574,647	...	...
18	Goods Brake Vans	526,577	...	...	...	9·041	...	...	...	4,760,773	...	...
19	Total Goods Ton Mileage ...	...	...	...	...	...	...	...	30,114,169	84,788,702	...	114,902,871
	MISCELLANEOUS (FOR STORES CARRIED FREE ON REVENUE ACCOUNT)—											
20	For Traffic Department ...	10,244	2,516	...	0·245	8·183	8·428	2·907	2,516	83,826	86,342	...
20-A.	,, Locomotive do. ...	106,442	572,590	...	5·379	5·597	10·976	49·007	572,590	595,755	1,168,345	...
21	,, Maintenance do. ...	208,503	514,640	...	2·468	5·470	7·938	32·364	514,640	1,140,511	1,655,151	...
22	Total ...	325,189	...	...	...	...	...	...	1,089,746	1,820,092	2,909,838	...
23	Engines and Tenders ...	67,143	...	...	...	41·501	...	...	...	2,786,531	...	...
24	Brake Vans	...	...	...	...	...	...	...	...	...	...	...
25	For stores carried free in ordinary trains.	...	...	...	...	...	...	...	...	...	...	...
26	Total Miscellaneous Ton Mileage...	...	...	...	...	...	...	...	1,089,746	4,606,623	...	5,696,369
27	Total Ton Mileage ...	...	...	...	...	...	...	...	36,112,793	137,615,210	...	173,728,003

TABLE M—II.

Division between Coaching and Goods of the Expenditure of Departments.

	RS.	RS.
Maintenance expenses	...	6,30,366
Reduced by—amount credited for sale of Revenue Stores	17,826	
Rents of dwelling-houses	31,039	48,865
Net amount ...		5,81,501
Locomotive expenses	...	6,64,179
Reduced by—amount credited for sale of Revenue Stores	1,164	
Hire of Locomotives	948	2,112
Net amount ...		6,62,067
Carriage and Wagon expenses	...	1,51,398
Traffic expenses	...	3,03,395
Reduced by—mileage of vehicles over foreign lines	9,953	
Use of stations jointly occupied	17,998	
Sale of Traffic Department Stores	2,538	30,489
Net amount...		2,72,906
General charges	...	1,91,037
Reduced by—amount of telegraph receipts	11,669	
Fees on shares transferred	1,309	
Sale of Stores	306	13,284
Net amount...		1,77,753
Special and Miscellaneous expenditure		36,898
Reduced by—sale of unclaimed and damaged goods		77
Net amount...		36,821

Division of Expenses.

—	Maintenance. (a)	Locomotive. (b)	Carriage and Wagon. (c)	Traffic. (d)	General. (e)	Special and Miscellaneous. (f)	Total.
	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Expenses as reduced above.	5,81,501	6,62,067	1,51,398	2,72,906	1,77,753	36,821	18,82,446
Due to coaching ...	1,83,860	2,40,559	39,242	94,208	64,586	13,379	6,35,834
Due to goods	3,97,641	4,21,508	1,12,156	1,78,698	1,13,167	23,442	12,46,612

TABLE M—III.

Distributed Cost of carrying the Vehicles of each Class, including Freight.

Details.	Coaching.									Goods.			
	First-class.	Second-class.	Third-class.	Fourth-class.	Carriage Trucks.	Horse Boxes	Luggage Vans.	Post Office Vehicles	Total.	Goods Vehicles	Cattle Vans.	Mineral Trucks.	Total.
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS	RS.	RS.	RS.	RS.
Maintenance (a)	18,667	26,932	88,719	18,487	2,254	9.693	11,203	7,905	183,860	394,184	3,457	...	397,641
Locomotive (b)	24,424	35,237	116,079	24,188	2,949	12,681	14,658	10,343	240.559	417,843	3,665	...	421,508
Carriage and Wagon (c)	4,285	6,056	18,319	3,922	667	2,012	2,198	1,783	39,242	110,878	1,278	...	112,156
Traffic (d)	10,287	14.539	43,980	9,415	1,600	4,829	5,277	4,281	94,208	176,661	2.037	...	178,698
General (e)	7,053	9,968	30,151	6,454	1,097	3,310	3,618	2,935	64,586	111,877	1,290	...	113,167
Special and Miscellaneous (f)	1,461	2,065	6,246	1,337	227	686	749	608	13,379	23,175	267	...	23,442

TABLE M—IV.

Classified Cost of carrying over one Mile a Vehicle, including Freight; also Total Cost of carrying over one Mile a Unit of each Description of Traffic.

Details.	Coaching.								Goods.		
	First-class.	Second-class.	Third-class.	Fourth-class.	Carriage Trucks.	Horse Boxes.	Luggage Vans.	Post Office Vehicles	Goods Vehicles	Cattle Vans.	Mineral Trucks.
	PIES.	PIES.	PIES.	PIES.	PIES.	PIES.	PIES.	PIES.	PIES.	PIES.	PIES.
Maintenance	6·648	6·784	7·388	7·191	5·160	7·351	7·774	6·762	8·171	6·216	...
Locomotive	8·693	8·875	9·666	9·408	6·751	9·617	10·171	8·848	8·662	6·590	...
Carriage and Wagon ...	1·525	1·525	1·525	1·526	1·527	1·526	1·525	1·525	2·298	2·298	...
Traffic	3·661	3·662	3·662	3·662	3·662	3·662	3·662	3·662	3·662	3·662	...
General	2·510	2·511	2·510	2·510	2·511	2·510	2·511	2·511	2·320	2·320	...
Special and Miscellaneous ...	0·520	0·520	0·520	0·520	0·520	0·520	0·520	0·520	0·479	0·480	...
Total ...	23·557	23·877	25·271	24·817	20·131	25·186	26·163	23·828	25·592	21·566	...
Cost per Unit ...	12·611	8·440	1·034	1·086	24·853	21·939	32·744	158·853	7·896	26·592	...

TABLE M—V.

Statement showing in comparison the Receipts and the carrying Cost per Vehicle per Mile and per Unit per Mile of Coaching and Merchandize Traffic.

Details.	Average Receipt per Vehicle per Mile. (a)	Carrying Cost per Vehicle per Mile. (b)	Profit per Vehicle per Mile. (c)	Loss per Vehicle per Mile. (d)	Average Receipt per Unit per Mile. (e)	Carrying Cost per Unit per Mile. (f)	Profit per Unit per Mile. (g)	Loss per Unit per Mile. (h)	Proportion per-cent. of Profits to Receipts. (i)
	PIES.	PIES.	PIES.	PIES.	PIES.	PIES.	PIES.	PIES.	
Coaching—									
1st-class	21·811	23·557	...	1·746	11·779	12·611	...	0·832	...
2nd ,, ...	14·468	23·877	...	9·409	5·155	8·440	...	3·285	...
3rd ,, ...	71·399	25·271	46·128	...	2·921	1·034	1·887	...	64·601
4th ,, ...	46·206	24·817	21·389	...	2·023	1·086	0·937	...	46·317
Carriages	20·980	20·131	0·849	...	25·870	24·853	1·017	...	3·931
Horses	16·833	25·186	...	8·353	14·575	21·939	...	7·364	...
Luggage, including parcels and dogs ...	47·208	26·163	21·045	...	59·066	32·744	26·322	...	44·563
Post Office Vehicles ...	0·898	23·828	...	22·930	5·988	158·853	...	152·865	...
Goods—									
Merchandize, including Government Stores and Railway Materials ...	33·773	25·592	8·181	...	10·394	7·896	2·498	...	24·033
Cattle...	14·403	21·566	...	7·163	17·747	26·592	...	8·845	...
Minerals	...	...	...	...	...	...	...	...	...

Madras,
16*th October* 1875.

(Signed) R. G. MACDONALD,
Examiner of Railway Accounts.

No. 403. ORDER THEREON, 16th November 1875, No. 3,287.

RAILWAY, No. 50.

ORDERED that these papers be forwarded to the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 404. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Government of India, P.W.D., dated 16th November 1875, No. 3,288.

RAILWAY, No. 51.

SIR,—In forwarding the Review of the Revenue Account of the Madras Railway for the second-half of 1874, I am to invite attention to the suggestions made by the Consulting Engineer in his covering letter for obtaining more correct results in respect to train mileage. The subject is intimately connected with the inquiry which the Secretary of State has, in his Despatch, No. 6R.,* dated 23rd September 1875, directed to be instituted into the excessive train mileage, both passenger and goods, run on the South Indian Railway. The apportionment of the results in the manner proposed by the Consulting Engineer will probably enable a more correct idea to be formed of the accommodation necessary for each description of traffic.

* *Vide* also Government of India letter, No. 2,664 R., dated 25th October 1875.

Read the following papers :—

No. 405. Telegram from the Executive Engineer, Coonoor, to the Secretary to Government, Public Works Department, Madras, dated 12th November 1875.

TREMENDOUS rain night of 9th. Coonoor Ghaut bad. Slips of earth and rock between 3rd and 15th mile of new ghaut. One bridge gone; road cannot be cleared in time for Prince, who comes up on 20th. Great havoc to old ghaut. One bridge gone. Time only suffices to clear this (old) road. If Prince goes down on 28th and no fresh extraordinary rain falls whole of new ghaut will be then ready. More by post.

No. 406. From Captain J. L. L. MORANT, R.E., District Engineer, Nilgiris, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Ootacamund, 13th November 1875, No. 366.

IN continuation of my telegram despatched yesterday from Coonoor, I have the honor to submit, for the information of Government, a report regarding the extraordinary damage which has occurred to the Coonoor Ghauts by the rain of last Tuesday night, the 9th instant. Five inches of rain fell in Coonoor that night in ten hours. Probably more fell on the Coonoor Ghaut slopes. At all events the havoc and destruction caused by the rain have been unprecedentedly great. The Local Fund Overseer, who has been employed on the ghaut for the last twelve years, states them to be much greater than he had ever before experienced. On the new ghaut, between the 3rd and 15th miles, large slips of earth, stones, and rocky boulders are almost continuous. Some of them are very extensive. Many of them have injured or knocked away the parapet wall and outer mound of earth. Some have knocked down a few small retaining walls. Near the 13th mile a timber platform bridge has been completely destroyed by a large rush of stones, boulders, earth and water. The dry stone abutments have been entirely obliterated, leaving a large gap several tens of feet wide. Several carts are detained between the numerous slips on this road. The old Coonoor Ghaut for quite two-thirds of its length has also suffered very much in a similar manner. One of its timber platform bridges (on the same stream as the one which was demolished on the new Ghaut) has been completely devastated. I estimate roughly all this damage at Rupees 5,000. A detailed estimate will shortly be prepared and submitted to you.

2. I regret that this untoward accident makes it quite impossible for His Royal Highness the Prince of Wales to drive up any part of the new Coonoor Ghaut on the 20th instant. The old ghaut is being rapidly cleared and will be in good order by that date. If the weather is favorable, I hope to have the new ghaut sufficiently cleared to admit of the Prince and his suite driving *down* it on or about the 28th instant if they feel so disposed.

3. The chief cause of the accident is, in my opinion, the excessive and unprecedented drought which we had between April and September, succeeded by the soaking and continuous rain during October and November. The state of the ground caused by the previous dry weather allowed the succeeding rain to penetrate very deep into its surface, causing the extensive slips which have occurred.

No. 407. ORDER THEREON, 16th November 1875, No. 3,289.

CIVIL WORKS, No. 27-A.

ORDERED to be recorded.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 408. Read the following letter from Captain L. CONWAY-GORDON, R.E., Controller of Public Works Accounts, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 5th November 1875, No. 129 W. :—

WITH reference to my letter No. 118 W., dated 28th October 1875, forwarding ten copies of the Report of the Committee appointed to consider the modifications necessary in the Public Works Code of the Government of India to adapt it to this Presidency, I have the honor to request, if it is likely that delay will take place in passing orders on the whole of the matters touched upon in the Report, that paragraph 100 together with Appendix L. may be separately dealt with.

2. This Appendix L. has reference merely to the manner in which advices of estimates are to be communicated to the Controller, a matter entirely outside the general question of the system of account.

3. Were I to receive as soon as possible the views of the Government on this single point, it would enable me to get ready the District Estimate Registers and to have the system of recording sanctioned estimates fairly started before any change is made in the system of account. It is, I need hardly say, very important to carry through these reforms gradually to prevent harassing the staff by a number of changes being introduced at once.

No. 409. ORDER THEREON, 16th November 1875, No. 3,290.

ACCOUNT, No. 9-B.

HIS EXCELLENCY the Governor in Council accepts the proposals of the Committee for modifying those portions of the Public Works Code of the Government of India relating to accounts, set forth in Appendix L. of their report now under consideration. The Controller will fix the date from which the Registers shall commence to be kept, and report it for information.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following letters :—

No. 410. From Captain ROSS THOMPSON, R.E., Officiating Consulting Architect to Government, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Chepauk, 14th October 1875, No. 237.

IN compliance with G.O., No. 4, dated 1st December 1874, I have the honor to submit a plan and estimate for putting windows into the backroom of the Museum.

1 Plan.
1 Estimate.
1 Abstract.

2. Both documents have been countersigned by the Superintendent of the Museum.

No. 410-A. From the same Officer, dated Chepauk, 9th November 1875, No. 256.

WITH reference to your Memorandum, No. 645, dated 3rd November 1875, I have the honor to state that the woodwork of the glass windows proposed to be put up in the backroom of the Museum will be painted with three coats of Carson's paint, green on the exterior and cream color inside, in keeping with the existing doors and windows.

2. Carson's paint, according to the District Schedule, costs as follows :—

		RS.	A.	P.	
Painting with three coats	Green paint...	4	12	0	per square.
,, ,,	White ,, ...	4	10	0	,,
,, ,,	Cream color	4	4	0	,,
,, ,,	Oak	4	0	0	,,

an average rate of Rupees 4-8-0 per square is allowed in the estimate.

3. Rupees 1-6-0 per superficial foot, provided in the estimate, is for *circular* glazed windows including frames, complete. The rate Annas 12-9 in the District Schedule is for glazed and panelled shutters exclusive of frames.

4. The district rate for semi-circular glazed fanlights with frames is Rs. 1-2-9 per superficial foot.

No. 411. ORDER THEREON, 17th November 1875, No. 3,291.

CIVIL WORKS, No. 27-A.

THE estimate is sanctioned. The question of the provision of funds will be considered hereafter.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Nos. 412 & 413. *Under date the* 17*th November* 1875, No. 3,292.

ESTABLISHMENT, No. 25-A.

MAJOR H. W. WOOD's absence on leave having extended beyond the limit laid down in G.O., No. 1,515, dated 7th June 1873, His Excellency the Governor in Council directs that the promotion notified

in the *Gazette* of the 7th September 1875 be cancelled. Major Wood's position in the Department, should he return to it, will be that which he held when he went on leave on 1st May 1873, *i.e.*, eighth on the list of Executive Engineers, 2nd Grade.

2. The promotion to 3rd Grade Executive Engineer given to Lieutenant J. F. Dorward, R.E., in the *Gazette* of the 1st September 1874, is cancelled on the same grounds, and that officer will be placed sixth on the list of Executive Engineers, 4th Grade, should he return to the Department; this being the position he held before proceeding on leave in July 1873.

(Signed) G. W. WALKER, Major-General, R,E.,
Secretary to Government.

Read the following letters :—

No. 414. From Major J. N. HUNTER, R.E., District Engineer, Salem, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Salem, 6th August 1875, No. 64.

I HAVE the honor to request that you will kindly forward to the Secretary of State for India the enclosed memorial regarding the recent order of the Government of India on the request of myself and other Majors of the Royal Engineers to be allowed to re-consider our election of the rules under which we draw salary.

No. 414-A. From Major A. DEC. SCOTT, R.E., Under Secretary to Government, Public Works Department, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 6th November 1875.

I HAVE the honor to request that you will be good enough to lay the accompanying memorial before His Excellency the Governor in Council, with a view to its transmission to the Right Honorable the Secretary of State for India.

No. 415. ORDER THEREON, 17th November 1875, No. 3,293.

ESTABLISHMENT, No. 25-B.

ORDERED to be forwarded to the Right Honorable the Secretary of State for India, together with memorial from Major J. N. Hunter.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following papers :—

No. 416. From Major J. BEATTY, R.E., Acting Superintending Engineer, Godavery District, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Dowlaishweram, 11th September 1875, No. 1,799.

WITH reference to G. O., No. 1,983, of 12th July 1875, I have the honor to report that the Range Officer stopped all work on the south groyne immediately on the receipt of those orders, as it was understood that the Marine Department would carry on the work to completion.

2. The expenditure incurred by this department on that work in the current year has been Rupees 1,370-8-0. This includes some payments still to be made to contractors for materials delivered. There is consequently a balance of the allotment* of Rupees 8,630 to be worked out by the Marine Department.

*Rupees 10,000.

3. The Master Attendant has been furnished with copies of the plan of the work and of the original and revised estimates.

TRANSFERRED to the Marine Department with reference to the orders quoted within.

OOTACAMUND, (Signed) G. W. WALKER, Major-General, R.E.,
21*st September* 1875. *Secretary to Government, P. W. D.*

From Captain J. H. TAYLOR, R.N.R., Acting Master Attendant, Administrative Department, to the Hon. D. F. CARMICHAEL, Officiating Chief Secretary to Government, Marine Department, Fort St. George, dated Madras, 28th September 1875, No. 6,234.

I HAVE the honor to report, for the information of His Excellency the Governor in Council, that on receiving permission by your telegram I repaired to Cocanada and completed a careful examination of the port and the plant to be made over to this department. I have examined and consulted about the nature and extent of the works in progress, and the changes that are absolutely necessary to the efficient condition of the port. Before proceeding, I am desirous of explaining most respectfully that, in applying for the charge of the river below bridge and the port from its present guardians, I am solely guided by the conviction that circumstances have altogether prevented a proper scrutiny into the wants and interests of the port, which has now undergone a material change of position. It is now no better or higher than Calicut, Bimlipatam or any other open roadstead with large trade. That is as far as the shipping is concerned, and the only duty that now devolves upon Government is that of providing for the boat traffic between the shipping and the shore, which duty in such an expensive place should, as far as port funds are concerned, be conducted in the most economical manner consistent with efficiency. Having the good fortune to possess in Captain Castor an able and indefatigable assistant, whos capacity for this kind of work has been tested at Cochin and elsewhere to the satisfaction of Government, and having within ready communication the talent and experience

of the Chief Engineer of the district should difficulties present themselves requiring scientific treatment, I am quite ready and willing to accept the responsibility of doing full justice to the mercantile and shipping requirements.

2. The dredging of the river bar and keeping the line of communication clear is the first object. To effect this, the District Engineer has made over two dredges and nine punts, to be increased to twelve when the others come down from Dowlaishweram. The condition of this plant is much as described in Colonel Mullins' letter plus the subsequent deterioration. It has suffered very much from exposure and want of proper professional attention, and there is a very great deficiency of very many minor necessities. In fact, the Dredge Superintendent informs me that, for some years, it has been the custom to work the dredges singly, using the united stores of each to make up one complete vessel; hence it is not to be wondered that the quantity of work done has been less than might have been expected, or that either vessel left without the care of a crew for many months should be found proportionately injured. I propose to keep one dredge at first in proper working order, hoping she will do all that is wanted; indeed the balance of the grant to be made over is so small that such a step is rendered imperative. One has just come out of a mud dock, and it is supposed her bottom is in good order. She will be selected, and the other got into a similar dock for examination. Owing to the absence of any lists of stores, &c., or any properly qualified person to go into details, some delay has arisen between the Superintendent and Captain Castor, for Major Beatty informs me now by letter that some good buckets and other stores have been found at the Dowlaishweram Workshop, but their existence was previously unknown to Captain Castor, who reported upon what was given over to him alone. It appeared to me, and I advanced my opinion to Major Beatty, that the transfer should be a perfectly business-like transaction. Either the plant should be made over ready for work and a joint inspection of it made, or the defects should be gone into jointly and proper inventories of all stores furnished. Log books should, of course, have been kept throughout the dredging in engineering form, and accounts of stores audited occasionally. A large amount of minor necessaries will have to be indented for before work can be begun. It has now been arranged by General Walker and myself that Captain Castor takes everything that is given to him, and makes out his own list and indent. This will greatly increase his labor, but is certainly the only course available under the circumstances, the favorable state of the river not calling for any immediate activity.

This question of dredging compels me again to bring before Government the condition of the southern revetment, to which I drew attention in a former report. I am afraid I did not make my meaning sufficiently clear on that occasion. I object to it, not as an engineering work for the protections of the town or any scientific purpose, but as an unnecessary outlay of port funds by not assisting in any way in the navigation of the river, and in support of my opinion I beg to draw the attention of His Excellency in Council to the following facts:—The river has been for many years in the state it is now in, and in the gradual process of silting up of the delta, the large flats to the southward of the river are fast becoming reclaimed land, and portions of them are already being used for grazing purposes. The artificial portion of the Cocanada river has, in the course of this time, assimilated itself to the new arrangement of nature, and has been draining this flat, and thereby assisting greatly in bringing about the present favor-

able state of things. There can be no rational fear of its changing its course, or breaking its bounds, without some great convulsion, such as an earthquake, or the destruction of the anicut. By the present judicious system of irrigation of the delta, the Godavery water is diverted from the Cocanada stream, and no freshes of a turbulent nature now occur. The period of my visit was chosen at spring tide, and very fortunately a rising of the Godavery to a height of 7·10 above the anicut took place. There was no excitement in the Cocanada river, nor was there any a few weeks before, when I am told a rise of 16 feet occurred. The only attacks that have been made upon Cocanada during late years have been from seaward during storms, strong north-east winds, and high tides. Soon after my former report had been delivered, an order was passed to prosecute the work of the groyne expeditiously; this was acted upon, and before the rainy season a large portion of the revetment was set up. When the rains fairly set in, this became an obstruction to the natural system of drainage I have adverted to, and, as a necessary consequence, the flat became a swamp. The villages and outlying portions of Jaganaikpoorum became inundated, petitions poured in, and it became clear that expensive masonry culverts and regular system of drainage had been rendered imperative. But before anything could be effected, the sapping of the revetment had ended in slipping a very great portion of it quietly down *into* the river, where it now lies. In the interests of the navigation, I would not wish to meddle with it; but if it is considered advisable by His Excellency in Council to make a permanent wall, and adopt a system of drainage out of port funds, then I would very respectfully urge that the land should be made over to the port, and the value, which it must ere long acquire, credited to the fund. It would be an excellent Municipal speculation: building is already progressing along the north bank, but it carries itself out of the Marine Department.

3. A portion of the southern bank, as may be seen by the plan* of the river forwarded with this, is protected by mangrove bush. This might be easily extended without expense; this would sufficiently indicate the bank, and would bend to any extraordinary attack from either side, and recover afterwards. Now I have shown above that there being only one dredge, and the removal of the bar being the first consideration, the prosecution of both works must rest in the same hands. The spoil can of course be deposited behind the upstanding portion of the groyne; but if Major Beatty does not object, I would advise that no present effort be made to rebuild the fallen portion for a season, but that Captain Castor be directed to keep a large scale plan before him, and carefully note monthly any changes that may occur, or any circumstances that may serve as guides to future action.

* It is requested that the plan may be returned.

4. The extreme portion of the north groyne requires some additional protection, which will be given before the north-east monsoon.

5. To assist the dredging and generally serve river purposes, the small steamer *Frank and Ada* has been made over. She has already proved herself very useful; indeed the survey of the bay just concluded has been entirely carried out in her, and could not have been done without her assistance; but she is in very bad condition, and the Commander of the Survey has several times been on the point of giving her

up as unseaworthy. Her plates are corroded through in many places, and her machinery wants looking to, her decks are very defective. I would beg to advise that the *Fred and May* be put in order and substituted for her. This vessel has new bottom plates, new deck, new boiler, and should with care have many years active service in her. The *Prince* is altogether too large for the river, and not suited for the sea. It would be better to sell to the highest bidder both her and the *Frank and Ada*, selecting the most promising market.

6. The *Frank and Ada* never rises to a five knot speed, and the tides in the river and the breezes outside are often strong, and a fairly powerful boat is required for towing; her forty horse-power, under proper condition, ought to be ample. It is believed that the *Fred and May* with new boilers will suffice.

7. The next subject of importance is the contemplated change of position of the Cocanada light. Until this is effected, Godavery Point will always be a bugbear and a danger. The point has extended so far to the north-east that the light is embayed by it. The light in its present situation and the expensive buoys moored round in the shoal water are the remains of the old ship harbour arrangements, and until they are removed and a proper leading light to the roads given, I feel myself justified in saying that the harbour has not been abandoned practically. The light tower requires to be placed about four miles to the northward of its present site, opposite the shipping as they now ride. Captain Hammond, Commanding the Survey Expedition, Captain Castor, and myself examined the coast on the 20th August. We selected a spot where topes of Cocoanut trees of great height showed the ground to be binding, and a well of fresh water with 11 feet of earth above the water showed it to be deep enough for foundation, and suitable for mixing chunam, which is also drawn from the immediate neighbourhood. This spot we have marked in the new chart as the probable site, if sanction is granted for the transfer.

8. If the 4th order Dioptric revolving light now at Cocanada is elevated here, navigators will have nothing to do after passing Hope Island light, but stand straight up along the coast until they bring this new light on a proper bearing, and then make straight for it, and those coming from the north will have only to guard against passing it unseen. The establishment of the old light would suffice for the new, and a great portion of the expense of erecting the new column might be defrayed by the sale of the materials of the old one which are valuable. The plans for lighthouse, quay, &c., have been, I understand, forwarded direct to Government, except the brick column by a Native contractor, which is with Major Beatty for examination and report.

9. The different estimates drawn up for constructing this lighthouse are three from Major Beatty, and, "quoting from a letter of his," as follows :—

	RS.
A brick column...	7,730
A cut stone do.	10,300
An iron staging suggested by Mr. Larminie	12,790
And a brick column estimated by a Native contractor, giving guarantee for the due performance of the work	4,500

10. I would beg respectfully to submit that this work is a very necessary one, and if carried out the question of the expensive screw-pile lighthouse on the point might be re-considered. I myself, looking to the navigation of the point, am of opinion that with this alteration and a better, say second-class Dioptric, light on Hope Island Column, Cocanada would be sufficiently provided for.

11. In connection with this subject of the removal of the lighthouse, the alteration of the limits of the port has to be considered. After searching for the northern obelisk for some time, it was discovered in a field more than a mile inland, about three miles from the Cocanada river, with several fields bordered with palmyras, and villages between it and the coast line. It was constructed in attention to Government Order, Marine, 12th October 1859, No. 6,030, only sixteen years ago, and it is only reasonable to suppose that it was well in sight of the shipping, say a quarter of a mile from the sea. Now the recovery of beach to Godavery Point seems only to have effect in the bay between Oppadah house and the point. I would, therefore, recommend that, in lieu of erecting another boundary mark, the northern limit of the port be extended to Oppadah house. It is necessary to have some well-defined boundary for legislative purposes.

12. Inside the river the passengers' landing-place sanctioned by Government is, under Captain Castor's direction, rapidly approaching completion; it is a very satisfactory solid piece of work, and will be most useful. The larger and more really essential undertaking, *viz.*, the quay for landing and shipping goods, for which purpose the old one has become insufficient, was suspended, pending a reference to the Public Works Department concerning the estimate and the construction of the roof. It would otherwise have been in the same forward state. The cranes and other adjuncts are ready on the spot, and some of the material was purchased in anticipation. I beg respectfully to submit that, although Captain Castor's estimate and plan were informal, they were prepared by himself with a full knowledge of his wants and requirements, and I have no doubt he would furnish a quay, " within his estimate," in every way suited to the port. The old one has recouped its original cost by fees, and finished its existence at the same time. With regard to the roof, a mat one, as originally proposed, would be much more easily repaired after storms without any other requisition than native labor, and the expense of making a roof so elaborately as to allow sheet iron to be fastened on it would be a very serious addition to the outlay, although, if once done, it might be of superior appearance and even utility, still it would take many years before it would restore a money equivalent. I am of opinion it would, considering the many shipping and mercantile requirements of the quay, be advisable that, whatever plan be selected, the execution should devolve on the Marine Department in conjunction with the other works. I regret very much to be obliged to bring so many requirements for this port of Cocanada to the consideration of His Excellency the Governor in Council, but their several necessities have from time to time been admitted, and if the port is now finally settled on a satisfactory basis, I have no doubt that, by a careful attention to its condition, and an equitable separation from its expenditure of all that is not fairly debitable to port funds, a favorable change in its balance will soon be established.

No. 416-A. From Captain J. H. TAYLOR, R.N.R., Acting Master Attendant, Administrative Department, to the Hon. D. F. CARMICHAEL, Officiating Chief Secretary to Government, Marine Department, dated Madras, 29th September 1875, No. 6,268.

I HAVE the honor to state, for the information of His Excellency the Governor in Council, in continuation of my report on Cocanada, that since writing that report I

have received a letter from Major Beatty, District Engineer, in which he states that an Assistant Engineer has been appointed to make over the plant at Cocanada to the Master Attendant, by which action the portion of my report bearing on that subject has been rendered unnecessary, and I respectfully beg that it may be cancelled. I am in hopes that the new dredge *Albuquerque* will, during the Cochin rough season, be able to go round to Cocanada, and make herself useful there if necessary. As regards her Cochin work, I cannot find any mention made of punts or barges for her use. The papers in my department merely describe the vessel herself, and I have not heard of any preparation for her at Cochin or elsewhere. If this has been overlooked, it might be advisable to take advantage of the present fine weather to send four punts round from Cocanada, or have an estimate called for at once for building four teak barges at Cochin, whichever plan recommended itself for economy.

2. If the Marine work at that port is, as I suppose, to be made over to the Marine Department, I ought to be on the look-out for an efficient Commander for the *Albuquerque*, for no doubt her present crew are only put on board for the voyage. As she is an expensive vessel, and her duties are very comprehensive, she ought to be placed in careful hands. The establishment for such a vessel would change greatly with the nature of the duties; but a Commander and Engineer must be attached to her permanently, and be in readiness to take charge when the contract with the builder expires.

No. 627.

Referred to the Public Works Department for remarks.

(Signed) D. F. CARMICHAEL,
Officiating Chief Secretary.

1st November 1875.

No. 417. Order thereon, 17th November 1875, No. 3,294.

ACCOUNT, No. 10.

It is remarked with reference to the latter part of paragraph 2 of Captain Taylor's letter, that the work of defining the course of the Cocanada river by extending the southern groyne or revetment parallel to and to the full extent of the northern, is one which was recommended by the Harbour Engineer Mr. Robertson at page 73 of his report. Its completion has already been insisted on in G. O., No. 1,271, of 5th May, and the District Engineer, Godavery, will be required to report annually on the progress made by the Master Attendant of Cocanada in carrying out the revised estimate of Rupees 40,000, sanctioned in G. O., No. 2,359, of 16th August 1875. It is observed that the total outlay by the Public Works Officers has been Rupees 19,378; that Rupees 8,630 of the current year's allotment is available; and that an allotment of Rupees 10,000 has been made in the budget of 1876-77, from port funds, to which the charge is clearly debitable. It is possible that a mistake has been made in not providing some breaks in the continuity of the revet-

	RS.
Up to end of 1874-75	18,008
In 1875-76	1,370
	19,378

ment to facilitate the drainage of the space behind, and the District Engineer will consider whether the estimate should not be supplemented by some provision for bridging such gaps, if they are found necessary. They may be furnished with narrow temporary crossings meanwhile, or be sloped and paved.

2. It is too late now to *substitute* the steamer *Fred and May* for the *Frank and Ada.* The latter has already been long at the service of the Marine Department for the Master Attendant's visits to Vizagapatam and examination of its harbour; the survey of Cocanada Bay has been entirely carried out in her; and she was by G.O., No. 1,271, of 5th May, formally transferred for the dredging operations for which Captain Taylor's report of 23rd March specially selected her. It is observed that in the same report he wrote most disparagingly of the *Fred and May* with reference to her fitness for marine purposes, regarding which he was doubtless then misinformed. Captain Taylor will now be requested to state whether he can utilize the *Fred and May* in addition to the *Frank and Ada.* If not, the former vessel will be transferred to the Irrigation Department, as requested in the District Engineer's letter recorded with G.O., No. 1,982, of 12th July.

3. Since writing his letter of 28th September, Captain Taylor has selected the District Engineer's plan and estimate of Rupees 6,600 for the new lighthouse at Vakalapudi, which has accordingly been sanctioned in G.O., No. 3,103, of 2nd November 1875. His suggestion that it should supersede the construction of the new lighthouse on Hope Island, recommended by Mr. Robertson, must be referred for orders of the Government of India as an Imperial question.

4. The District Engineer's plan and estimate of Rupees 8,500 for a landing and shipping quay at Cocanada were sanctioned in Marine Department Order, No. 351, of 11th October 1875.

5. Nothing is known in the Public Works Department regarding the *Albuquerque* which was ordered for marine works at Cochin. There are no public works in operation or being planned at that harbour in conformity with G.O., No. 27, of 7th January 1875, passed on Captain Taylor's report.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 418. Read the following letter from Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 15th November 1875, No. 45 :—

In continuation of my letter, No. 40, of 29th October 1875, I have the honor to forward herewith the Statement of Expenditure on account of the Operations of the Madras Irrigation and Canal Company, for July 1875, in comparison with the Budget allotment.

Statement of Expenditure on account of the Operations of the Madras Irrigation and Canal Company during the Month of July 1875.

Description of Charges.	Budget Allotment.	Expenditure. Up to the end of last Month.	Expenditure. In this Month (July 1875.)	Expenditure. Total.	Remainder of Allotment.
From State Expenditure.	RS.	RS.	RS.	RS.	RS.
Establishment of the Chief Engineer for Irrigation for the control of the operations of the Madras Irrigation and Canal Company ...	6,508	1,428	439	1,867	4,641
Purchase money of land ... Kurnool ...	3,000	29	38	67	2,933
Purchase money of land ... Cuddapah ...	1,500	...	...	...	1,500
Total ...	11,008	1,457	477	1,934	9,074
From Loan Capital.					
Establishment and Office Contingencies ...	59,820	838	227	1,065	54,708
Construction (Original Works)		2,448	684	3,132	
Plant and Stores		722	193	915	
Total ...	59,820	4,008	1,104	5,112	54,708
Revenue Account.					
Proportion of share or charges for general management including Office Contingencies.	45,728	9,595	3,542	13,137	32,591
Conservancy Staff do.	87,200	20,827	6,034	26,861	60,339
Maintenance and Repairs	67,650	28,165	12,998	41,163	26,487
Total ...	200,578	58,587	22,574	81,161	119,417
Grand Total ...	271,406	64,052	24,155	88,207	183,199

Fort St. George,
15*th November* 1875.

(Signed) A. deC. SCOTT, Major, R.E.,
for *Chief Engineer for Irrigation.*

No. 419. Order thereon, 18th November 1875, No. 3,295.

IRRIGATION, No. 44-A.

Ordered to be recorded.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 420. Read the following letter from A. B. SAMPSON, Esq., Under Secretary to the Government of India, Public Works Department (Establishment—Irrigation), to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department, dated Fort William, 11th November 1875, No. 241 E—I:—

In reply to your letter No. 2,618, of 13th September 1875, I am directed to communicate sanction to the revised scale of Establishment for the Tanjore District,

involving a net increase of Rupees 20 per mensem, as shown in the tabular statement submitted with your letter.

2. This sanction has been registered in this office as No. 46 of 1875.

No. 421. ORDER THEREON, 18th November 1875, No. 3,296.

ESTABLISHMENT, No. 25-A.

ORDERED to be recorded.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 422. Read the following letter from W. C. FURNIVALL, Esq., Under Secretary to the Government of India, Public Works Department (Railway), to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department (Railway), dated Fort William, 11th November 1875, No. 2,712 R. :—

I AM directed to acknowledge the receipt of your letter, No. 2,804, dated the 29th September 1875, forwarding an indent, amounting to Rupees 2,88,000, on the Board of Directors of the Madras Railway for ten engines and tenders.

2. In reply, I am to say that the evidence contained in paragraph 5 shows that with the present traffic and good management there is no reason why the engines on the Madras Railway should be overtaxed. If, however, it can be shown that, owing to a development of traffic, more engines are absolutely essential, a few may be hired or purchased from some other of the Guaranteed Companies who have surplus engines in stock, and a report to that effect will be awaited before considering the question of getting out more engines from England.

3. I am to draw attention to the percentage of engines undergoing repairs which is high, and to suggest that efforts should be made to keep a larger number in running order.

No. 423. ORDER THEREON, 18th November 1875, No. 3,297.

RAILWAY, No. 51-A.

COMMUNICATED to the Consulting Engineer for Railways with reference to G.O., No. 2,803, dated 29th September 1875, and for such remarks as the Railway authorities may have to offer on paragraphs 2 and 3.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 424. Read the following letter from Colonel A. S. MOBERLY, R.E., District Engineer, Cuddapah, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Peddatippasamudram, 9th November 1875, No. 1,758 :—

I HAVE the honor to forward, for approval and sanction, the accompanying plan, abstract estimate, specification report, and a list, amounting to Rupees 230, for repairing the Public Works Department bungalow and out-houses at Rajampett, and to state that a rent of Rupees 7-8-0 will be charged on the building when repairs are completed for the same. There are no funds at my disposal for carrying out this work.

2. The building was constructed about fifteen years ago as a Public Works Department bungalow, it is near the junction of the Royachoty and Rajampett road with the Madras road ; its present value is given as Rupees 400, and as the old public bungalow at Pullumpett has been taken away from the Public Works Department the putting this building in order will give the Overseer a residence.

No. 425. ORDER THEREON, 19th November 1875, No. 3,298.

CIVIL WORKS, No. 28.

THE repairs may be carried out and the expenditure met from the sum of Rupees 700 transferred from Godavery to Cuddapah under Repairs Civil Buildings in G.O., No. 3,270, dated 16th November 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 426. Read the following Proceedings of the Board of Revenue, dated 21st October 1875, Miscellaneous No. 9,553 :—

Read the following letter from A. McC. WEBSTER, Esq., Collector of South Canara, to H. E. STOKES, Esq., Acting Secretary to the Board of Revenue, dated Mangalore, 4th October 1875, No. 1,899.

Board's Proceedings, Miscellaneous No. 8,622, of 22nd September 1875.

WITH reference to G.O., dated 7th September 1875, No. 2,533, Public Works Department, I have the honor to state that although an Assistant Engineer was posted to the district in March 1875, he only joined about ten days ago and has not I believe, owing to some circumstances, taken charge ; so the district is as badly off as ever for Public Works Officers.

SUBMITTED to Government with reference to the order quoted.

(True Copy and Extract.)

(Signed) H. E. STOKES,
Acting Secretary.

No. 427. ORDER THEREON, 19th November 1875, No. 3,299.

ESTABLISHMENT, No. 26.

IT is to be regretted that the Public Works Establishment has not been maintained at its full strength so as to admit of the full complement of Range Officers being allotted to the Canara District, and that the irregular conduct of one officer sent there in absenting himself without leave has rendered it necessary to suspend him from employment for a time. This state of affairs will, however, shortly terminate.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following :—

No. 1,325.

No. 428. MEMORANDUM.

PARAGRAPH 3 of the Proceedings of the Board of Revenue, to which the attention of the undersigned has been directed in G.O., No. 2,838, dated 1st October 1875, refers to the unsatisfactory state of irrigation works in the Madura District, as noticed by the Collector and Sub-Collector in their reports on the progress of Public Works during 1874-75.

2. The Collector states that the wants of the district have not been met ; he mentions that the District Engineer thinks the old tanks incapable of improvement, their capacity being diminished by gradual silting up ; also it is stated that all the channels require masonry work and other improvements, but he sees no prospect of getting these works carried out. The undersigned is unaware of any reason why much should not be done annually towards providing the channels referred to with such masonry works as they may be found to require. The grant for Minor New Works may not have been large, but the Government have shown every desire to find funds for such purposes, and a considerable increase of expenditure on such works has already taken place in some districts; if the money already given for Madura be utilized, and if its further requirements be brought to notice in a manner admitting of the necessity for increased grants being clearly understood, no doubt the means of the District Engineer for carrying out improvements will be correspondingly augmented. As it is, the District Engineer has stated that he cannot spend the current year's grant for Minor New Works, on such works, and he applied for the transfer of Rupees 1,000 out of Rupees 2,000, which could not be utilized, to investigations of projects, an arrangement which could not be sanctioned ; and as money is required in other districts, notably North Arcot, where the wishes of Government as regards the improvement of the condition of irrigation works have been understood and acted upon, the sum surrendered will be utilized elsewhere.

3. The wants of the Madura District in connection with irrigation works are doubtless very numerous. Such is the case in a very great many other districts also, indeed it would be difficult to name a district in which old irrigation works are numerous of which the same may not be said, and evidence of this will have been noticed in the Notes of inspection from time to time submitted from this office. That these wants may not be capable of being met very rapidly in the present state of the Public Works Department may be very true, but the undersigned is of opinion—an opinion based upon what has been found practicable elsewhere—that a very great deal may be done, first in ascertaining what the real wants are, and then in providing for them.

4. The Sub-Collector, Mr. Bliss, is to some extent mistaken in his views of what Government require before the investigation of new projects is undertaken. Certainly, nothing impracticable is required, and it would clearly be impracticable to repair tanks which have silted up considerably so as to enable them to irrigate their full ayacut. What is required is that leaving general assertions on which no action can be taken, the actual condition of existing irrigation works should be ascertained and what can or cannot be done with them determined. For so doing every assistance requisite can be afforded to the District Engineer by the undersigned on conditions which have been clearly laid down and which are essential; and such assistance is being rendered to other District Engineers from time to time on similar conditions. Money for the purpose is provided in the annual Budgets, and those who take the necessary steps and furnish the requisite information, on which alone the undersigned can sanction expenditure for investigations in connection with the improvement of irrigation works, obtain the means necessary to such investigations.

5. The undersigned has on many occasions stated his opinion that the Engineering Establishment of the Public Works Department is inadequate to the duties it has to perform, and that much advantage would be found in increasing it so that officers of education and intelligence might be available for the work to be done, work which cannot generally be carried out satisfactorily by subordinates even of some executive experience. The department is however still under-officered, and while officiating for Major-General Walker the undersigned had practical experience of the great difficulty which exists of finding officers to fill vacancies and take charge of districts and ranges. For extra work, such as the investigation of projects, it is believed that not one can be made available without direct prejudice to work which cannot be postponed. For such work as the improvement of the irrigation works of Madura, the services of two or three Assistant Engineers would be of great value, and similar remarks would be equally applicable to at any rate Tinnevelly, Trichinopoly, Salem, North Arcot, Chingleput, Cuddapah, and Kurnool. Cuddapah, it may be added, has strong claims and has been sadly neglected, its staff has for a series of years been anything but efficient, and yet it is a district in which an adequate establishment of the proper stamp would do excellent service and repay its cost many fold.

6. The Sub-Collector of Madura admits that the ordinary Public Works Establishment of the district cannot do what he desires to see done, *viz.*, the investigation of the resources of the sub-division generally, which are available for the

improvement and extension of irrigation, and it may be assumed that he does not wish the existing irrigation works to be still more neglected in order that new projects may be taken up. If the latter are to be undertaken concurrently with increased attention to the former, it follows that additional officers must be made available, and that they may be so at some future time, for nothing can make them so immediately, it will be requisite to arrange for the increase of the Engineering Establishment generally, and to organize it on a scale which will admit of the work which the Government may desire to see carried out being undertaken. A few years back it was too much the practice to divert time and money from existing works to new projects, which were urged on the attention of Government with more or less *prima facie* evidence in their favor. After much discussion it was decided that existing works of irrigation and the interests connected with them had the first claim on such means as the Government had at their disposal. These means were and are confessedly inadequate to the investigation of new schemes as well as the maintenance and ordinary improvement of old works, and so the former have been postponed, and increased attention has been devoted to the latter, a course or policy which will certainly bear good fruit in the long run. Engineers are sometimes credited with a desire to postpone such ordinary work, as the proper maintenance of old tanks and channels, to schemes likely to effect more noticeable results, so that in advocating attention to what is essential to the security of very extensive interests both public and private, it may be assumed that there must be a very strong conviction of the urgent need of this attention, based upon a considerably extensive knowledge of the actual condition of existing works.

OOTACAMUND, (Signed) JOHN MULLINS, Lieut.-Colonel, R.E.,

15*th November* 1875. *Chief Engineer for Irrigation.*

To the Secretary to Government, P.W.D.

No. 429. ORDER THEREON, 19th November 1875, No. 3,300.

IRRIGATION, No. 47.

COMMUNICATED to the Revenue Department with G.O., No. 2,838, of 1st October. Also to the District Engineer, Madura, who is directed to attend strictly to the instructions of the Chief Engineer for Irrigation without further reference to Government. The full strength of the establishment of the Madura District will shortly be made up by transfer, on the arrival of the Assistant Engineers expected from Cooper's Hill, which will permit of the permanent posting to districts of those who arrived last year. And in another year their own services will be permanently available for sub-division or range charges, and the sanctioned Public Works Establishment be for the first time complete.

(Signed) G. W. WALKER, Major-General, R.E.,

Secretary to Government.

No. 430. Read the following letter from Captain R. F. MORRIS, R.E., District Engineer, Trichinopoly, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Trichinopoly, 22nd October 1875, No. 627 :—

As the estimates for offices for Nos. II. and III. Ranges of this district are now before Government, and the question of their sites must therefore be considered shortly, I have the honor to recommend strongly that the following redistribution of the taluqs between the different ranges may be made :—

Range.	Taluq.	Class.	Head Quarters.
No. I. Range	Trichinopoly	1st	Trichinopoly.
" II. "	Museri and ... ... Kulitala	2nd	Museri.
" III. "	Udaiyarpalaiyam .. Perambalur	2nd	Areyalur.

Present distribution.

Range.	Taluq.	Class.	Head Quarters.
No. I. Range	Trichinopoly and ... Kulitala	Special.	Trichinopoly.
" II. "	Museri and ... ... Perambalur	2nd	Museri.
" III. "	Udaiyarpalaiyam ...	3rd	Udaiyarpalaiyam.

2. The chief object of the proposed arrangement is the more equal distribution of the work among the ranges, the work in the present Trichinopoly Range being out of all proportion to that in the other two, in No. 3 Range more especially. The Cantonment itself throws a large amount of work on the Officer in No. 1 Range ; but the irrigation and local works are also more numerous and important in this than in the other ranges. Another advantage in this redistribution would be that the ranges would coincide with the Revenue Divisions of the district. I also think it desirable that both banks of the Cavery should be under the same instead of under different officers as at present. Major Law, who advocated the proposed arrangement in last year's Administration Report, suggested that Kilapalur should be the new head quarters of No. 3 Range, on the ground, I believe, of its proximity to the Coleroon Irrigation Work ; but Areyalur is practically as near, both places being within one day's march of the river, with easy communication by road No. 15 now being metalled ; on the other hand, Areyalur is far the larger and more important place of the two, is the head-quarters of the Revenue Officer in charge of the division, and is more central for the range generally.

3. Subjoined is a statement of the expenditure for the past two years on the different classes of works in the present ranges.

4. I should be glad if the question of the proposed redistribution of taluq could be settled early, as if approved by Government it might take effect from the commencement of 1876-77 :—

—			No. 1 Range.		No. 2 Range.		No. 3 Range.	
			1873-74.	1874-75.	1873-74.	1874-75.	1873-74	1874-75.
Ordinary.			RS.	RS.	RS.	RS.	RS.	RS.
Imperial	Military ...	Original Works.	15,280	18,803	...	...	...	...
		Repairs ...	13,240	15,520	...	...	...	...
	Agricultural	Original Works.	14,136	1,494	280	1,347	435	918
		Repairs ...	18,342	75,585	22,065	17,766	11,147	19,908
Provincial ...		Original Works.	18,978	35,584	3,217	4,380	7,991	5,437
		Repairs .	1,214	2,553	480	...	320	...
Local		Original Works.	37,627	55,992	6,474	2,245	4,282	5,938
		Repairs ...	45,353	45,989	23,909	27,974	10,905	15,706

No. 431. ORDER THEREON, 19th November 1875, No. 3,301.

ESTABLISHMENT, No. 27.

HIS Excellency the Governor in Council declines to disturb the existing arrangements made by G.O., No. 1,543-A., of 11th June 1873, which are understood to be approved by the Chief Engineer for Irrigation. One of the Assistant Engineers shortly expected from Cooper's Hill College will, if possible, be posted to the Trichinopoly District, with a view to his taking up a sub-divisional charge in the Trichinopoly Range with head-quarters at Kulitalai, after having passed in the vernacular, and being reported fit for such a charge by the District Engineer.

2. The head-quarters of the Udaiyarpaliem may be at Areyalur.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 432. Read the following letter from Major J. BEATTY, R.E., Acting Superintending Engineer, Godavery District, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Dowlaishweram, 2nd November 1875, No. 2,295 :—

AT the request of the Acting Postmaster-General of Madras, I have the honor to forward two plans and an abstract estimate, amounting to Rupees 150, for certain improvements to the Post Office at Cocanada.

1 Estimate.
1 Plan of a portion of the Post Office.
1 Plan of glazed shutters.
1 Copy of letter, No. 2,030, of 2nd Oct. 1875.

2. The Postmaster-General is of opinion that, as the cost of the improvements is only Rupees 150, they should come under the head of Repairs.

3. A copy of my letter to the Postmaster-General, explaining the necessity for the work, is enclosed.

4. I request you will be good enough to have the necessary funds allotted from the Reserve at the disposal of Government.

From Major J. BEATTY, R.E., Acting Superintending Engineer, Godavery District, to H. G. TURNER, Esq., Postmaster-General of Madras, dated Dowlaishweram, 2nd October 1875, No. 2,030.

IN the course of the repairs recently carried out at the Cocanada Post Office, two much-needed improvements were brought to my notice. These are as follow:—

1st.—The steps by which the public approach the verandah in front of the Post Office room to post letters, &c., are of most inconvenient dimensions, having a tread of about 10 inches to a rise of 1 foot, and at the top step there is only a clear vertical space* of about 5 feet. This is manifestly insufficient, and the public have long complained of getting their heads broken against the roof. I have estimated for throwing the top step about 2 feet 4 inches back, and building a new flight of steps with a rise of 7 inches and a tread of 1 foot.

* See the Plan at B C.

2ndly.—Owing to the low verandah, very little light is given to the Post Office room by the verandah windows, and that room would be very dark but for the two end windows. But these windows face the north, are not protected by a verandah or weather-boards, and are at present fitted only with venetian shutters. During the north-east monsoon, at times of heavy rain, these shutters have to be closed, leaving the Post Office in almost total darkness, and the rain is driven in by the strong wind through the venetians, &c. I have estimated for putting the present venetian shutters on the outside, and glazed shutters inside, and providing weather-boards.

See the Plan at D E.

2. If you approve of these alterations, I have the honor to request you will obtain sanction for the funds required.

No. 433. ORDER THEREON, 19th November 1875, No. 3,302.

CIVIL WORKS, No. 29.

THE plan and estimate, amounting to Rupees 150, for certain improvements to the Post Office at Cocanada are sanctioned, and funds are allotted from the Reserve under Postal.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 434. Read the following Circular from the Government of India, Public Works Department, (Account—Irrigation,) dated Simla, 25th October 1875, No. 58 P.W.:—

Classification of Receipts from Irrigation Works.

Read the following papers—

Public Works Department Circular, No. 64 of 1871.
" " " No. 80 of 1871.

It is observed that no uniform practice has heretofore been in force in classifying the receipts from Irrigation Works, and the Governor-General in Council considers that the time has arrived for laying down the heads of account under which such income should be entered in the Finance Accounts of the Public Works Department. In this view the receipts may be first arranged under three principal classes :—

1*st.*—The direct receipts from those Irrigation Works for which either *Capital and Revenue Accounts* or only *Revenue Accounts* are kept.

2*nd.*—The direct receipts from all other agricultural works.

3*rd.*—Indirect receipts from the first group, *viz.*, Irrigation Works for which either *Capital and Revenue Accounts* or only *Revenue Accounts* are kept.

The classification of direct receipts will be as follows, commencing from 1875-76 :—

I.—Water rates from irrigation.—The receipts under this head will consist of sale proceeds of water for irrigation purposes only. The sale proceeds of water to public gardens, commissariat preserves, &c., will be shown under the head of Miscellaneous receipts by sales of water.

II.—Owners' rates on irrigated land.—Separate orders will be issued of the receipts to be classified under this head, and whether the receipts should be entered in the Finance Accounts of the Public Works Department, or should be classed under Land Revenue in the Civil Accounts.

III.—Miscellaneous receipts by sales of water.—These will include sale proceeds of water supplied for purposes other than irrigation or town consumption.

IV.—Water supply of towns.—This will include sale proceeds of water supplied to towns for domestic purposes.

V.—Receipts from plantations.—This will include sale proceeds of produce from canal plantation.

VI.—Receipts from other canal produce.—To include sale proceeds of wood and grass from canal banks other than regular plantations.

VII.—Navigation receipts.—To comprise transit dues, transport profits, tolls and hire of boats. Sale of drift wood passing down canals should be entered under X., Miscellaneous.

VIII.—Rents of buildings.—To include receipts from permanent or temporary buildings when such receipts cannot be credited to Capital.

IX.—Fines.—To include receipts by fines for wastage of water and infringement of canal rules. Fines on establishment should be entered under Miscellaneous, there being no particular object gained in showing such receipts distinctly.

X.—Miscellaneous.—To include receipts by sale of drift wood and fines on establishment. Rents of lands should also be included under this head. But the Government of India consider that no lands should be retained permanently by the Irrigation Department which are not required for plantations, buildings, or other works connected with the canals. Such land should be made over to the Civil authorities for sale, and the sale proceeds credited to receipts on Capital account.

2. It is to be observed that receipts to be credited to Irrigation Revenue will not include the sale proceeds of tools and plant in cases where their original cost was debited to Revenue. The amounts of such proceeds should be credited to the head tools and plant, or, in other words, should be treated as reduction of outlay ; so also

refunds of expenditure should not be treated as receipts, but be credited to the head to which the expenditure was originally charged.

3. The second group or direct receipts from ordinary agricultural works for which no Capital or Revenue accounts are kept will be classified, as far as possible, under the heads mentioned above for the first group.

4. Regarding the classification of indirect receipts from Irrigation Work separate orders will be issued. But the Governor-General in Council considers it necessary to direct that the name by which such receipts shall be known for the future is "land revenue due or dependent on the works."

5. It is to be understood that no change is to be made in the classification of receipts from and expenditure on Irrigation Works without the sanction of the Government of India previously obtained.

ORDER.—Ordered, that this Circular Resolution be communicated to the Governments and Administrations noted on the margin, and the Accountant-General, Public Works Department, for information and guidance, and to the other Administrations for information.

Governments of Madras, Bombay, Bengal, North Western Provinces and Punjab.
Chief Commissioners of the Central Provinces, British Burmah and Mysore.
Governor-General's Agent, Rajpootana, and Resident, Hyderabad.

Ordered also, that a copy be forwarded to the Financial Department and Department of Revenue, Agriculture and Commerce for information.

(Signed) C. H. DICKENS, Colonel, R.A.,
Secy. to the Govt. of India.

No. 435. ORDER THEREON, 19th November 1875, No. 3,303.

IRRIGATION, No. 46.
Account.

COMMUNICATED to the Revenue Department for information, and to the Controller of Public Works Accounts for information and guidance.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 436. Read the following letter from W. C. FURNIVALL, Esq., Under Secretary to the Government of India, Public Works Department (Railway), to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department, dated Fort William, 12th November 1875, No. 2,715 R.:—

I AM directed to acknowledge the receipt of your letter, No. 2,808, dated the 29th September 1875, and in reply to convey the approval of the Government of India to the appointment of a Deputy Chief Engineer on Construction, South Indian Railway, on a salary of Rupees 1,000 per mensem, with effect from 1st July 1875.

2. I am, however, to observe that the sanction should lapse on the date of the opening of the line from Madras to Tanjore, if it is running until that period.

3. The sanction accorded in paragraph 1 has been registered as No. 29 M.R. of 1875-76.

No. 437. ORDER THEREON, 19th November 1875, No. 3,304.

RAILWAY, No. 52.

COMMUNICATED to the Consulting Engineer for Railways for information and guidance with reference to G.O., No. 2,807, dated 29th September 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 438. Read the following letter from A. C. LAWFORD, Esq., District Engineer, South Canara, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Managalore, 9th November 1875, No. 51 :—

I HAVE the honor to submit, for the sanction of Government, an estimate amounting to Rupees 475 for putting in repair the old place of arms at Poottoor, lately used as a Police station-house.

2. The value of the building being within Rupees 1,600, as reported in my letter, No. 27 of 21st July 1875, printed with G.O., No. 2,216, of 30th idem, I am unable to sanction the accompanying estimate under the existing rules.

3. The work estimated for is absolutely necessary, as it is reported that a rafter has been broken and a hip rafter, and about half the reepers have been destroyed by white-ants.

4. As it is improbable that any additional or separate allotment can be obtained this year from Government from Provincial Funds, I shall endeavour to spare about Rupees 150, or as much as I can from the balance of repair allotment at my disposal, for appropriation, on the estimate being sanctioned, in order to commence the work this official year, and to ensure its completion before the month of May next. The balance will be appropriated during the next official year.

5. At present the building is occupied by the Local Fund Board as a school, at Rupees 10 per month, and the Poottoor Range Officer offers the same rent if let to him as a dwelling-house on its vacation by the Board. Except that it might always be useful as a dwelling-house for a Range Officer, I do not know of any other use that it could be put to; but as I believe that Poottoor is to be the taluq head quarters, when it may prove serviceable if not required for the above purpose, I think the money may be advantageously laid out in its repair.

No. 439. ORDER THEREON 19th November 1875, No. 3,305.

CIVIL WORKS, No. 29-A

THE estimate amounting to Rupees 475 for repairing the old place of arms at Poottoor is sanctioned. Funds will be

provided as proposed by the District Engineer. The building may be rented to the Range Officer as proposed; but the rent should be raised if the work now sanctioned will increase the value of the building.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 440. Read the following papers:—

Endorsement of the District Engineer, Presidency, dated Fort St. George, 17th November 1875, No. 3,599.

From J. N. GRAINGER, Esq., General Superintendent of Public Works Stores and Workshops, to Captain ROSS THOMPSON, R.E., District Engineer, Presidency, dated Chepauk, 15th November 1875, No. 1,020.

I HAVE the honor to forward, for transmission to Government, the Packing Account of Public Works Stores for the Mysore Administration per S.S. *Hankow*.

2. The stores have been received correct by the Superintending Engineer for Irrigation, Mysore.

SUBMITTED to the Chief Engineer and Secretary to Government, Public Works Department.

(Signed) ROSS THOMPSON, Captain, R.E.,
District Engineer, Presidency.

No. 441. Endorsement of the District Engineer, Presidency, dated Fort St. George, 19th November 1875, No. 3,628.

From J. N. GRAINGER, Esq., General Superintendent of Public Works Stores and Workshops, to Captain ROSS THOMPSON, R.E., District Engineer, Presidency, dated Chepauk, 17th November 1875, No. 1,028.

I HAVE the honor to return, for transmission to Government, the Packing Account of Stores for the Mysore Administration per S.S. *Hankow*.

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1 Packing Account.

SUBMITTED to the Chief Engineer and Secretary to Government, Public Works Department.

(Signed) ROSS THOMPSON, Captain, R.E.,
District Engineer, Presidency.

No. 442. ORDER THEREON, 19th November 1875, No. 3,306.

ACCOUNT, No. 11.

ORDERED that the Packing Accounts be forwarded to the Home Government.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 443. From the Secretary to the Government of Fort St. George, Pubilc Works Department, to the Under Secretary of State for India, dated 19th November 1875, No. 3,307.

ACCOUNT, No. 12.

SIR,—I am directed by His Excellency the Governor in Council to retransmit, for submission to the Most Honorable the Secretary of State for India, the original Packing Accounts of Remittance, Mysore Foreign Funds Stores per S.S. *Hankow* for Madras, and to state that the stores have been received in good order and condition.

No. 444. Read the following letter from J. D. GRANT, Esq., Officiating District Engineer, Tinnevelly, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, dated Puthugudi, 22nd October 1875, No. 88 :—

1 Estimate with comparative Statement.

* Printed with G.O., No. 2,502, dated 1st September 1875.

I HAVE the honor to forward to you an estimate for the head sluice to the Pauliem channel, the flood bank, &c., being altered in the manner pointed out by you in your Note,* a saving of Rupees 700 being thus effected.

2. In this estimate the cost of the head sluice remains unaltered, three of the masonry works are omitted, and the return of the bank is raised 2 feet as directed, the gradient being carried down from that level to the bund level at the head sluice as proposed in the previous estimate.

3. There is an increase necessarily in the compensation for land, as more requires to be taken up for the drainage channel, and also in the quantity of earthwork.

4. The three masonry works which are retained in the estimate are required for irrigation sluices, as the embankment is carried over three patches of nunjah, to avoid which it would have been necessary to make the embankment line much more tortuous than as now designed. The embankment in this estimate is also intended to go round the small village near the head sluice, instead of through it as originally intended, this will serve to protect the village, while if carried through its streets the bank being several feet high, could not but be inconvenient to the inhabitants.

5. In this estimate all the instructions conveyed in your Note have been complied with, and I would beg your early approval and the return of the plans.

CAPITAL—ORDINARY. TAMBRAPOORNY IRRIGATION. PALAVUR SECTION.

REVISED ABSTRACT ESTIMATE.

Tinnevelly District, Tinnevelly Taluq.

WORK.—Constructing Head Sluice for Pauliem Channel, and raising bund from head sluice along river bank.

Quantity.	Description of Work.	Rate.	Amount.	Total.
		RS. A. P.	RS. A. P.	RS. A. P.
1	Head Sluice at	8,200 0 0	8,200 0 0	8,200 0 0
	Embankment.			
32,479½	Cubic yards earth	0 1 6	3,044 15 3	
5,843	Do.	0 3 0	1,095 9 0	
2¼	Acres Nunjah compensation, per acre	450 0 0	1,012 8 0	
...	Compensation for Palmyrah and other trees...	...	150 0 0	
...	Cutting channel, constructing drop into Paliem channel, revetting bunds in odays, &c.	...	390 0 0	
...	Sundries about 2½ per cent.... ...	...	96 15 9	5,790 0 0
...	Appendices of Nos. 1, 3, and 6 ...	170 0 0	510 0 0	510 0 0
	Superintendence ...	...	...	500 0 0
	Total Estimate revised Amount ...	...	...	15,000 0 0

PALAMCOTTAH,
13*th October* 1875.

(Signed) W. HUGHES,
Tinnevelly Range Officer.

(Signed) J. D. GRANT,
Officiating District Engineer, Tinnevelly.

No. 445. ORDER THEREON, 19th November 1875, No. 3,308.

IRRIGATION, No. 46-A.
Account.

THE arrangements in connection with the Pauliem channel head sluice, which have been revised in accordance with the instructions contained in Proceedings of Madras Government, No. 2,502, of the 1st September last, are approved, and the revised estimate of Rupees 15,000 is sanctioned.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 446. Read the following letter from Major H. M. VIBART, R.E., District Engineer, Bangalore, to Major-General G. W. WALKER, R.E., Chief Engineer, Public Works Department, dated Bangalore, 12th November 1875, No. 132 :—

I HAVE the honor to forward herewith, for sanction, an estimate of Rupees 340 with plan and specification for constructing a latrine for barrack guard at French Rocks.

2. The plan and estimate have been prepared at the requisition of the Major-General Commanding the Division, and have met with the approval of His Excellency the Commander-in-Chief.

3. I am unable to point out the source from which the cost of the work can be met, as the allotment under the head Minor New Work for the current official year has already been exhausted.

No. 447. ORDER THEREON, 19th November 1875, No. 3,309.

MILITARY WORKS, No. 13.

SANCTIONED, the expenditure being met from the extra allotment of Rupees 2,000 for Minor New Works, Military, granted in G.O., No. 3,270, of 16th November 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 448. Read the following endorsement of the Consulting Engineer for Railways, dated Madras, 15th November 1875, No. 623 :—

From D. LOGAN, Esq., Acting Agent of the South Indian Railway, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Trichinopoly, 11th November 1875, No. 976.

WITH reference to your No. 760, of the 3rd instant, I have the honor to enclose herein copy of the Consulting Physician's report on the sanitary condition of the stations from Trichinopoly east and south, for the quarter ending 30th September 1875

2. Dr. Thomas says that he cannot furnish a report for the quarter ending 30th June, as Dr. Houston had not left a copy of the same on his departure.

Report of the Consulting Physician on the Stations for quarter ending 30*th September* 1875.

Negapatam	Latrines clean, waiting and bath-rooms properly attended to.
Sickle	The latrines in all these stations were clean, dry-earth was used, and the passengers have learnt to accommodate themselves in the proper sites.
Keevalore	
Trivalore	
Kulikery	
Koradachary	
Needamungalum	
Ammapettah	
Saliamungalum	Compound and latrines very orderly.
Tanjore	Compound tidy. Latrines attended to.
Boodalore	The premises and latrines in all the stations are well attended to, and from the rush made at each station to the latrines there is no doubt of their great popularity and usefulness.
Teroovembore	
Trichinopoly Junction	
Do. Fort	
Kolattur	
Manarparai	
Vaiyampatti	Station not completed.
Aiyalur	No station built.
Vadamadura	Station and latrines being built.
Dindigul	
Amayanaikanur	
Sholavandan	
Madura	Latrine occupies a prominent position, but is screened by lattice work.

NEGAPATAM,
6*th November* 1875.

(Signed) J. B. THOMAS,
Consulting Physician, S.I.R.

SUBMITTED for the information of Government.

(Signed) J. H. M. SHAW-STEWART, Lieut.-Colonel, R.E.,
Consulting Engineer for Railways.

No. 449. ORDER THEREON, 19th November 1875, No. 3,310.

RAILWAY, No. 53.

ORDERED to be recorded.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 450. Read the following letter from Captain ROSS THOMPSON, R.E., Officiating Consulting Architect to Government, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Chepauk, 28th October 1875, No. 247 :—

I HAVE the honor to submit a letter received from Messrs. Arbuthnott and Co., with reference to the cast iron railings supplied by Mr. DeClosets to Tiroomala Naick's Palace.

2. In forwarding a copy of the same to the District Engineer of Madura, I requested him to take steps for speedily adjusting their claim, and herewith enclose his reply.

3. I have the honor to request that Government will be pleased to sanction the disbursement of the amount due.

From Messieurs ARBUTHNOTT and Co., Secretaries and Treasurers of the Napier Foundry Company, (Limited,) to Captain ROSS THOMPSON, R.E., Officiating Consulting Architect to Government, Madras, dated Madras, 16th October 1875.

We have the honor to acknowledge the receipt of your memorandum, dated 14th instant, forwarding copy of letter from Lieutenant-Colonel Fischer, R.E., District Engineer, Madura, and in reply thereto state that the first application for payment of the bills therein alluded to was made to Mr. Chisholm, the Consulting Architect to Government, for—

Rupees	509	3	4	on 14th February 1874.
,,	341	4	0	on 16th March ,,
,,	374	12	8	on 16th April ,,
,,	366	0	8	on 14th May ,,

and, as it is most inconvenient for Mr. DeClosets to be kept any longer waiting for money now so long due to him, we have the honor to request that the amount of his claims may be settled without any further delay, or we shall be under the necessity of making an application to Government through our Solicitors with regard to it, in which case interest at the rate of 12 per cent per annum on the original amount will be claimed from the dates on which the respective bills were first submitted to the Consulting Architect to Government for payment.

From Lieutenant-Colonel J. F. FISCHER, R.E., District Engineer, Madura, to Captain ROSS THOMPSON, R.E., Officiating Consulting Architect to Government, dated Teroomungalum, 23rd October 1875, No. 2,992.

Your No. 239, dated 19th October 1875.

In reference to the above I have the honor to inform you that the amount (*viz.*, Rupees 1,591-4-8) of Mr. A. DeClosets' bills can be met from such sums which have been appropriated from the current year's allotment for the Palace, but which it is probable cannot be fully utilized during this year. But it is observed from paragraph 5 of G.O., No. 1,587, of 5th June 1875, that the payment of the bills is to be authorized by Government after the submission by you of the "further and more particular explanation" about the additional amount required for iron railings.

No. 451. Order thereon, 19th November 1875, No. 3,311.

CIVIL WORKS, No. 30.

The District Engineer of Madura will take immediate steps for the adjustment of the account with the Napier Foundry Company. It is stated in another letter from the Consulting Architect, No. 246, of 27th October, that "from a careful search into the records of this office there do not appear to be any documents bearing on any agreements entered into with Mr. DeClosets." And it is presumed that he has been unable himself to obtain any explanation, in personal communication with that gentleman, of the increased charges complained of in paragraph 6 of Mr. Chisholm's letter, recorded with G.O., No. 1,587, of 5th June. Under these circumstances His Excellency the Governor in Council

directs that District Engineers shall not give orders to the Napier Foundry Company till they shall have satisfied the Chief Engineer of the Public Works Department that they cannot get their work well and reasonably executed at the Public Works Workshops.

2. It is not clearly understood what is the exact excess over the sanctioned estimate of Rupees 12,040 that will be incurred by this payment; the District Engineer will report clearly.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 452. Read the following Proceedings of the Madras Government in the Revenue Department, dated 2nd November 1875, No. 1,559:—

ABSTRACT.—*Land taken up for a Range Office in Godavery District.*—Sanctioning payment of Rupees 1,474-3-8, being the amount of compensation for the —. Observing that the extent of land is unnecessarily large, and referring the point for inquiry in the Public Works Department.

No. 453. ORDER THEREON, 19th November 1875, No. 3,312.

CIVIL WORKS, No. 31.

COMMUNICATED to the Controller of Public Works Accounts for adjustment under the rules.

2. The plot of ground in question is required not only for the range office, but to provide space for the residences of the Range Officer and two Assistant Engineers, proposals in connection with which are before Government. The exact boundaries of the plot of ground selected were determined by the local circumstances, and a site plan was forwarded with the original design and was approved.

3. The Controller will observe that the description given in the register is incorrect, that the range office was sanctioned in G.O., 14th December 1874, No. 3,508, and that it is under construction from Provincial Funds.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 454. Read the following letter from Captain ROSS THOMPSON, R.E., Officiating Consulting Architect to Government, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Chepauk, 27th October 1875, No. 246:—

WITH reference to the orders of Government marginally noted, I have the honor to submit a specification and estimate, amounting to Rupees 41,620, for completing the restorations of Teroomal Naick's Palace.

1 Plan.
1 Quantities and Estimate.
1 Abstract.

G.O. No. 2,416-A, dated 25th Aug. 1874.
" " 444 " 16th Feb. 1875.
" " 1,587 " 5th June "

2. The estimate which is prepared in accordance with the drawings submitted on the 14th January 1875, provides for restoring and decorating such portions of the structure not included in the estimates previously submitted, which are colored pink in the plan forwarded herewith.

3. Adverting to the last paragraph of G.O., No. 1,587, dated 5th June 1875, I beg to state that from a careful search into the records of this office, there do not appear to be any documents bearing on any agreements entered into with Monsieur DeClosets.

TEROOMAL NAICK'S PALACE, MADURA.

Estimate for completing the restorations of the Palace.

General Remarks.

This estimate provides for restoring and decorating such portions of the structure not included in estimates previously submitted to Government, and is prepared in accordance with the plans forwarded with Consulting Architect's letter No. 393, dated 14th January 1875.

Specification.

The upper broken verandahs on the north and south sides of the large dome A will be entirely removed, and the inner arched openings will be properly formed and fitted with glass windows. The two end openings on each side will be closed (see Sections Nos. 3 and 6.)

The upper verandahs east and west of the vaults B and C will be restored.

The upper openings on the north, south, and east sides of the court-yard to be closed (see "*a*" on Section No. 6.)

The two outer sides of the domes D E F and G will have three arches on each side (see "*b*" Section No. 1.)

The broken dome D will be built up in all respects like dome E (see Section No. 1.)

The broken vaults over H I J K L M N O P Q and R and the broken arches over the colonnades to be restored.

The form of the domes D E F G and S will be changed by a layer of concrete, and the finials to be restored according to the drawing (see east elevation and Sections Nos. 1 and 6.)

The south-east angle turret will be restored similar and symmetrical with the north clock turret (see east elevation.)

The north wall of the palace, as well as the sides of the Judge's Court, will be underpinned as shown on the drawings.

The cut stone plinth round the court-yard will be entirely restored, and steps provided as shown on the plan. The large columns surrounding the court-yard to have cut stone bases similar to the columns already restored on the west side of the court-yard.

The remaining portions of the basement floor of the Palace to be paved with 9-inch square bricks, and the ground-floor gravelled.

The whole of the ceilings to be repaired and washed, and the ceilings on the west side of the court-yard painted in colors, according to the original patterns.

The interior of the large dome A will be painted and decorated according to instructions to be furnished by the Consulting Architect.

The walls and columns will be plastered where necessary, and the remaining portions washed buff with white finishings similar to the portions already restored.

Holes for ventilation will be constructed in the various roofs, carefully covered in and protected by tube and cap ventilators.

The court-yard and sides of Judge's Court will be levelled and laid out with plants and walks, *vide* plan.

The entrance will be provided with ornamental iron gates, the details of which will be furnished by Consulting Architect.

(Signed) ROSS THOMPSON, Captain, R.E.,
Offg. Consulting Architect to Government.

No. 455. ORDER THEREON, 19th November 1875, No. 3,313.

CIVIL WORKS, No. 32.

THE work provided for in the estimate of Rupees 41,620 submitted with the above letter is explained in the specification attached to it and above recorded. It consists of all works of restoration and decoration not included in the revised estimates of Rupees 87,000 for securing the structure and fitting it up for public offices, sanctioned in G.O., No. 1,587, of 5th June. It is sanctioned for execution after completion of the works last mentioned; for which an allotment of Rupees 25,000 will, if possible, be made in the Provincial Budget of 1876-77, and augmented in the course of that year so as to permit of the completion of the accommodation for which the estimate of Rupees 50,950 provides. In another year the accommodation for the Civil and Session Court will be provided. And finally the work now sanctioned will be carried out.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 456. Read the following papers :—

From Major-General M. K. KENNEDY, R.E., Secretary to the Government of Bombay, Public Works Department, to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department, dated Bombay Castle, 5th October 1875, No. 1,127.

WITH reference to your letter, No. 148, dated 18th March last, a reply to which has been delayed through oversight, I am directed to forward, for the information of the Madras Government, the accompanying copy of a report, No. 3,344, dated 2nd instant, from the Consulting Engineer for Railways, on the subject of accommodation available for travellers at Shahabad Station.

No. 3,344.

REPORT.

THE waiting-rooms at Shahabad would probably accommodate three Europeans and three ladies for the night, but there are no beds provided, benches only are available. In the refreshment-room meals are provided at certain specified times, but there would be no difficulty in arranging for meals with the messman at any hour passengers might wish. Ladies would be left undisturbed in their waiting-room, but gentlemen would have to put up with the drawback of their sleeping accommodation being provided in the refreshment-room. The station is furnished with a bath-room and excellent lavatories. From four to six may be put down as the average number of first and second-class passengers who alight at the station, and most of these, the Agent reports, go to the hotel.

2. The hotel makes up four beds, but the rooms are small and uncomfortable. A second one is being built, and will be ready in about a month.

3. It also is to have four bed-rooms and promises to be a better hotel than the other.

4. The table kept at the present hotel is very fair; when the second hotel is opened passengers will, it is believed, always find sufficient accommodation.

BOMBAY, (Signed) H. F. HANCOCK, Lieut.-Colonel, R.E.,
2*nd October* 1875. *Consulting Engineer for Railways, Bombay.*

No. 247.

REFERRED to the Military Department with remarks of the Members of Government in original.

FORT ST. GEORGE, (Signed) G. W. WALKER, Major-General, R.E.,
30*th October* 1875. *Secretary to Government, P.W.D.*

No. 457. Endorsement of the Secretary to Government, Military Department, dated Fort St. George, 12th November 1875, No. 5,518.

From Brigadier-General A. HOWLETT, C.B., Quartermaster-General, to Colonel A. C. SILVER, Secretary to Government, Military Department, dated Fort St. George, 11th November 1875, No. 7,074.

IN returning the correspondence relative to the accommodation for travellers at the Shahabad Station, received with your docket, No. 5,426, of the 9th instant, I have the honor to state that His Excellency the Commander-in-Chief has no remarks to offer, further than that in the station building, or at either of the two hotels, the families of officers travelling with troops would apparently find no difficulty in obtaining the necessary accommodation during their short stay at that station.

2. Shelter for troops is otherwise provided for in the rest camp.

No. 5,426.

REFERRED, with advertence to the correspondence marginally noted, to the Commander-in-Chief for any expression of opinion which His Excellency may desire to offer, in regard to the accommodation available for travellers at the Shahabad Station.

Proceedings of Government, 12th December 1874, Nos. 4,064 and 4,065.

FORT ST. GEORGE, (Signed) A. C. SILVER, Colonel,
9*th November* 1875. *Secy. to Government, Mily. D.*

TRANSFERRED, with the referred papers, to the Public Works Department.

(Signed) A. C. SILVER, Colonel,
Secy. to Government, Mily. D.

No. 458. ORDER THEREON, 19th November 1875, No. 3,314.

RAILWAY, No. 53-A.

ORDERED to be recorded, and communicated for general information.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 459. Read the following endorsement of the Chief Engineer for Irrigation, dated Camp at Kundoocoor, 10th November 1875, No. 46 :—

From A. J. DODSON, Esq., Manager and Acting Chief Engineer, Madras Irrigation and Canal Company, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, dated Kurnool, 18th October 1875, No. 115.

IN reference to the sum of Rupees 88-6-9 being the amount of certain items paid to Mr. A. McKenzie and disallowed by Government as noted in margin, I have the honor to solicit the orders of Government.

Audit Satement.	Description of Charge objected to.	Amount.
		RS. A. P.
July 1873.	Travelling allowance, proceeding on Company's business from Madras to Kurnool	21 11 6
Dec. "	Do. do. from Kurnool to Madras and back	43 7 0
Do. "	Batta for five days less received, proceeding from Madras to Kurnool in June 1873	5 0 0
Do. "	Salary for extra time employed in Hindry stock-taking	14 8 3
Jan. 1874.	Travelling expenses, proceeding on Company's duty to Soonkasala and back	3 12 0
	Total ...	88 6 9

2. As reported in my letter, No. 96, of 28th August 1875, printed with G.O., No. 2,747, of 22nd September 1875, a refund of these amounts could not be obtained from Mr. McKenzie, and it is now proposed that they be allowed to remain as they now stand in the books, *viz.*, a charge against General Management, Revenue.

No. 77.

REFERRED to the Examiner of Accounts for report.

(Signed) JOHN MULLINS, Lt.-Col., R.E.,
Chief Engineer for Irrigation.

30*th October* 1875.

No. 1,171 I.

MEMORANDUM.

IN returning the letter from the Manager and Acting Chief Engineer, Madras Irrigation and Canal Company, No. 115, dated 18th ultimo, received under Chief Engineer's docket, No. 77, dated 30th idem, the undersigned has the honor to say that he ventures to think that the travelling charges and other expenses paid by the Irrigation Company to Mr. McKenzie, late a Store-keeper in their employment, should, for the following reasons, be recouped by the Capital Account of the Company to the Revenue Account and carried to the items disallowed head in the Capital books.

2. It is not suggested in this correspondence that the retrenchments were made in error. It must therefore be the case that the sums objected to were paid to Mr. McKenzie contrary to

rules; and if the Company cannot recover the overpayments either from the officer who received the money or from the officer who paid it in error, it seems only just that the Company should bear the loss. If the payments be allowed to remain in the Revenue Account, the Company will practically have transferred to Government the loss arising from the negligence of their own servants.

MADRAS,
5th November 1875.

(Signed) R. G. MACDONALD,
Examiner, Railway Accounts.

SUBMITTED for the orders of Government.

(Signed) JOHN MULLINS, Lt.-Col., R.E.,
Chief Engineer for Irrigation.

No. 460. ORDER THEREON, 19th November 1875, No. 3,315.

IRRIGATION, No. 47.

Establishment.

As it appears that the responsible officers of the Madras Irrigation and Canal Company did all that seems to have been in their power to obtain from Mr. McKenzie a refund of the sum of Rupees 88-6-9 improperly paid to him on account of travelling allowances not supported by the rules, the Honorable the Governor in Council is pleased, as a special case, to sanction the debit of this amount to the head of General Management, Revenue.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 461. Read the following letter from T. D. HARRIS, Esq., Officiating District Engineer, Malabar, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Calicut, 23rd September 1875, No. 93 :—

Rupees 116.

I HAVE the honor to forward, for sanction and provision of funds, an estimate for supplying fixtures and moveable arm-racks for the guards at Cannanore, duly approved by the Officer Commanding the Provinces, *vide* G.O., No. 2,098, dated 23rd July 1875.

2. As already stated in my letter, No. 91, dated 16th instant, the allotment under Minor New Works Military is exhausted.

No. 462. ORDER THEREON, 19th November 1875, No. 3,316.

MILITARY WORKS, No. 14.

THE estimate, amounting to Rupees 116, for fixtures and moveable arm-racks for the guards at Cannanore is sanctioned. The District Engineer will provide the necessary funds from the grant of Rupees 500 for Minor New Works made in G.O., No. 3,270, dated 16th November 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 463. Read the following letter from W. B. LEGGATT, Esq., A.I.C.E., Officiating District Engineer, Bellary, to Major-General G. W. WALKER, R.E., Chief Engineer, Public Works Department, dated Bellary, 10th November 1875, No. 1,957 :—

WITH reference to your Memorandum, No. 653, dated 4th instant, I have the honor to state that the balance remaining unappropriated under "Repairs, Military," on this date is Rupees 11,800. Of this sum about 6,800 will be required to meet expenditure on annual repairs, &c., to Military buildings during the remaining five months of this year, and the balance of Rupees 5,000 may be transferred to other works.

2. In the event of the transfer of the sum of Rupees 5,000 being sanctioned, I beg to state that the amount can be advantageously utilized on the following works, which are of an emergent nature, *viz.* :—

	Estimate.
	RS.
1. Altering the Garrison Battery Barracks into a Gymnasium, G.O., No. 121, dated 6th May 1874	3,162
2. Altering the roof of the single Apothecary's quarters, G.O., No. 161, of 28th May 1874	2,270

No. 464. ORDER THEREON, 20th November 1875, No. 3,317.

MILITARY WORKS, No. 15.

THE District Engineer, Bellary, is at liberty to commence the works in question in anticipation of an allotment by transfer or otherwise, when the amount that will probably be spent is reported in the last quarter.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 465. Read the following endorsement of the Consulting Engineer for Railways, dated Madras, 18th November 1875, No. 629 :—

From R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Madras, 16th November 1875, No. 1,144.

WITH reference to my letter of the 29th September last, No. 1,014, I have the honor to enclose you copy of the 4th paragraph of a letter which I received from the Board of Directors by the last mail, upon the subject of Handyside's patent disc wheels. I also enclose you a copy of the correspondence referred to by the Board.

Extract from a letter from the Secretary of the Madras Railway Company, No. 560, dated London, 22nd October 1875.

Sir John Hawkshaw's report on Handyside's wheels.

PARAGRAPH 4.—Adverting to paragraphs 68, 69, and 72 of your No. 1,142, I have to inform you that the two pairs of Handyside's wheels and axles, and the small case sent home in the

Cornwallis, have been delivered, and the Consulting Engineer has had them examined in the presence of Mr. Wright and the patentees. I now send you copy of Sir John Hawkshaw's letter, dated 21st instant, on the subject, and copy of the letter from the patentees, to which he refers. The wheels and axles will be forwarded to the works of Messrs. Thomson, Sterne and Co., who have undertaken to supply a new set free of charge, as well as the materials necessary for strengthening the other sets at Madras.

(True Extract.)

(Signed) R. B. ELWIN,
Agent and Manager.

From Messieurs HAWKSHAW, SON and HAYTER, to JULIAN BYRNE, Esq., 33 New Broad Street, E.C., dated Madras Railway Engineer's Office, 33 Great George Street, Westminster, 21st October 1875.

We send you herewith a copy of a letter from Messrs. Thomson, Sterne and Co., (Limited), offering to put in proper order the one set of Handyside's wheels which were sent from India, and to supply the necessary parts to enable the sets in India to be put right.

2. The design of the wheel seems to be good, and if repaired in the manner pointed out by Mr. Sterne to Mr. Wright and Mr. Hayter, the wheels will probably be found to answer. The Board therefore should assent to the proposition of Messrs. Thomson, Sterne and Co , and give instructions to have the defective set of wheels sent to their works in Glasgow.

From Messieurs THOMSON, STERNE and Co., (Limited), to Messieurs HAWKSHAW, SON and HAYTER, Westminster, dated 9 Victoria Chambers, Westminster, London, 20th October 1875.

Mr. Sterne in company with Mr. Hayter and Mr. Wright inspected the set of the Handyside's patent disc wheel, and we regret that the faulty construction of the boss should have destroyed the wheel. We are now prepared to manufacture these wheels and as soon as we have started, and being much interested in their success, we will replace, free of charge, the defective set referred to by an improved manner of fastening the discs to the boss. We will also supply such parts, free of cost, as will enable the wheels now in India to be put in proper working order. We may add that we are prepared to pay the Railway charges for the delivery of these from London to Glasgow, and we trust you will permit the defective set now in your possession to be sent to our works at Glasgow.

Submitted for the information of Government, with reference to their Proceedings, under date the 23rd March 1875, No. 811, and the 13th September 1875, No. 2,653.

(Signed) J. H. M. SHAW-STEWART, Lieut.-Colonel, R.E.,
Consulting Engineer for Railways.

No. 466. Order thereon, 20th November 1875, No. 3,318.

RAILWAY, No. 54.

Ordered to be forwarded for the information of the Government of India.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 467. (Docket No. 3,319, dated 20th November 1875.)

Copy of the above forwarded to the Government of India, with reference to the correspondence ending with their letter, No. 2,190 R., dated 3rd September 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 468. Read the following letter from Captain L. CONWAY-GORDON, R.E., Controller of Public Works Accounts, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 18th November 1875, No. 142 W.:—

With reference to G.Os., Nos. 68 and 149, of the 10th and 22nd September 1875, respectively, I have the honor to forward, for transmission to the Government of India, the accompanying statements showing the number of Government servants borne on the *ministerial establishment* under the audit of this office.

2. The numbers shown in the revised statements now submitted differ from those included in the statement forwarded with this office letter No. 18 W, of the 19th June 1875, members of *office establishment only* having been entered in the revised statements as required in paragraph 2 of the Government of India Circular, No. 50, of 21st August 1875, while in the statements first sent Delta and Anicut Superintendents and Local Fund Sub-Overseers were also included.

No. 469. Order thereon, 20th November 1875, No. 3,320.

ESTABLISHMENT, No. 28.

Ordered to be forwarded to the Government of India.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 470. (Docket No. 3,321, dated 20th November 1875.)

Copy of the above forwarded to the Government of India with reference to their Circulars quoted below:—

No. 50 E. G., dated 21st August 1875.
" 54 E. G., " 11th Sept. "

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 471. Read the following letters :—

From Colonel H. S. THUILLIER, Surveyor-General of India, to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department, Ootacamund, dated Simla, 11th October 1875, No. 839 F.

A list and tracings.

* Sheet 8, Section C 4, D, has been already forwarded—*vide* Surveyor-General's letter, No. 1,064, dated 17th May 1875.

Districts North and South Arcot.—Atlas Sheets Nos. 77 A, 78 B, 79 C.
District Madura.—Atlas Sheets Nos. 61 A, 62 C, 79 B, 80 D, 81 E.

IN continuation of letter of this office, No. 382 F., dated the 26th July 1875, I have the honor to advise despatch by rail of tracings on vellum cloth of thirty-six sheets embracing twenty sections* of districts North and South Arcot, and thirty-two sections of district Madura, as per list accompanying, together with two index maps prepared on atlas sheets, numbers as per margin, showing the arrangement of the whole of the sheets comprised in those districts.

2. On a reference to Sheets 62 C and 80 D of the Index to the District of Madura, two small blanks will be observed, the maps for these small portions on a large scale not being deposited in this office; no tracings of these particular parts can be sent; they may however be forthcoming in your own office. I shall be glad to know if these traces contain all the information you deem necessary.

3. The following eight sheets are still in hand, and are expected to be ready for despatch within the next fortnight, when they will likewise be forwarded. These eight sheets will complete the entire work, for which the sum of Rupees 1,940 (as per estimate) has been received in payment through the Controller of Public Works Accounts, as advised in your communication, No. 1,928, of the 6th July last :—

SHEETS IN HAND.

North and South Arcot.

Sheet	2,	Section	C 5	g, 25	of Estimate.
,,	4,	,,	C 4,	B & C	,,
,,	7,	,,	C 4,	E	,,
,,	11,	,,	S 4	J, 21 & 22	,,
,,	17,	,,	S 4	J, 18	,,
,,	18,	,,	C 4,	L	,,
,,	19,	,,	C 4,	K	,,

District Madura.

Sheet 20, Section S 3 B of Estimate.

4. An acknowledgement to Calcutta Office at convenience will oblige.

No. 471-A. From the same Officer, dated Calcutta, 22nd October 1875, No. 1,742.

1 Receipt.

20 Sections of districts North and South Arcot, and 32 Sections of district Madura.

I HAVE the honor, in continuation of this office letter, No. 839 F., dated the 11th instant, to advise despatch of tracings on vellum cloth of thirty-six sheets in fifty-two sections, as per margin, by rail to Madras, and beg that the amount prepaid, *viz.*, Rupees 14-13-0 for their transit, may be remitted to this office as early as convenient.

2. The Railway Company's receipt for the parcel accompanies.

No. 472. ORDER THEREON, 20th November 1875, No. 3,322.

IRRIGATION, No. 47-A.
Accounts.

THE Controller of Public Works Accounts will arrange to place at the disposal of the Surveyor-General of India the sum of Rupees 14-13-0, being cost of transit of the maps alluded to in G.O., No. 1,927, dated 6th July 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 473. From the Secretary to the Government of Fort St. George, Public Works Department, to the Surveyor-General of India, dated 20th November 1875, No. 3,323.

IRRIGATION, No. 47-B.
Account.

SIR,—I am directed to acknowledge the receipt of your letter, No. 839 F., dated 11th October 1875, and No. 1,742, dated 22nd October 1875, advising this office of the despatch by rail of twenty-three sheets of tracings on vellum of the Madura District, and thirteen sheets of North and South Arcot Districts, in all thirty-six sheets as specified in list, exclusive of the two index maps comprised in eight atlas sheets, all of which have duly reached this office. Sheet No. 8 belonging to the set comprising North and South Arcot, which was sent as a sample, was acknowledged in this office No. 1,928, dated 6th July 1875.

2. I am to add that the Controller of Public Works Accounts has been instructed to place the necessary funds at your disposal to defray the transit charges of the maps by rail to Madras.

No. 474. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 15th November 1875, No. 622 :—

ADVERTING to the Proceedings of Government, dated the 2nd and 29th September 1875, Nos. 2,506 and 2,796, I have the honor to enclose a letter* from the Agent of the Madras Railway, giving cover to certain correspondence upon the subject of the proposed doubling of part of that Company's line for the conveyance of material for the Madras Harbour.

* No. 1,127, 9th November 1875.

2. The Superintendent of the Harbour Works is of opinion that the use of a line of rails, 10 miles in length, from Madras to Ambatoor, is necessary for the proper

progress of the work. The proposal of the Government of India, that the material should be conveyed during the night, could not, in his opinion, be safely carried out.

3. The Board of Directors state "that if it is found necessary to double the line from Perambore to Avady, in order to provide efficiently for the speedy conveyance of the large quantity of laterite and stone that will be required daily from Ambatoor and Tirutany, for the construction of the Madras Harbour, they are prepared to undertake the execution of the line in question, as a charge against Revenue, if the Government desire it." The Board further express their opinion that "the cost of converting the 100 wagons to suit the stone traffic should be borne, either directly or indirectly, by the Harbour Works."

4. I have again discussed the matter with Mr. May. He is strongly of opinion that the Harbour Works should be in sole possession of a line of rails leading from the quarries to the sea; but he sees the difficulties which stand in the way of such an arrangement, and is content to press for the doubling of the line between Perambore and Ambatoor, a distance of about 6 miles.

5. The Railway authorities urge that the line should be doubled from Perambore to Avady, a distance of about $9\frac{1}{2}$ miles; and the estimate which accompanied my letter of the 14th July, No. 396, provides for this. The reasons for advocating the increased length of double line are given by the Traffic Manager in paragraph 4 of his letter printed with the Proceedings of Government, under date the 24th July 1875, No. 2,112.

6. Looking at the proposed extension with reference solely to the Harbour Works, I am of opinion that the doubling of the line may properly be stopped at Ambatoor. This would probably reduce the cost from Rupees 3,40,000 to about Rupees 2,20,000.

7. It has already been shown that the profit from carrying the harbour material, after deducting working expenses, will probably amount to Rupees 4,66,875; and if to the cost of doubling the line, as estimated above at Rupees 2,20,000, is added the cost of converting 100 wagons, *viz.*, Rupees 54,100, there will remain a balance in favor of the Railway Company of about Rupees 1,92,775.

8. Two copies of the working time-table of the Madras Railway are herewith submitted.

From R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Madras, 9th November 1875, No. 1,127.

I HAVE the honor to inform you that upon the receipt of your letter of the 14th of September last, No. 994, and of the Proceedings of Government forwarded therewith, I communicated with the Superintendent of the Madras Harbour Works upon the subject, and I now beg to enclose, for the information of Government, a copy of the correspondence* that has passed between us.

* To Superintendent of Harbour Works, No. 3,334, dated 16th September 1875.
From do. No. 34 R., 4th October 1875.
To do. " 3,551, 5th " "
From do. " 48 R., 30th " "

2. Mr. May is of opinion that it will not be necessary to provide a double line beyond Avady, but as to the necessity for a double line to that point he entertains no doubt, and he

explains why the suggestion made by the Government of India, that the material trains should be run during the night, is not feasible.

3. With reference to the suggestion made in the last part of the 3rd paragraph of your letter, you will observe that Mr. May recognises the fairness of the proposal I made to him, to the effect that in the event of its being possible to obtain granite at a point or points nearer Madras than 51 miles, the Railway Company may charge the Harbour Works a higher rate than 6 Pies per ton per mile for carrying it, thus bringing the total profit to the sum on which the Company originally recommended the Government to authorize the doubling of the line from Perambore to Avady.

4. The financial results previously anticipated may therefore still be relied on, and I now forward, for the consideration of the Government, an extract paragraph 18 from a letter from the Board of Directors, dated the 13th of August last, in which it is stated that if the Government desire it, the Directors are prepared to undertake the doubling of the line from Perambore to Avady as a charge against Revenue. The objection expressed by the Government of India against burthening this Company's capital with a permanent debt on account merely of the Harbour Works will thus be obviated, and I trust that sanction for the proposed work will no longer be withheld.

5. The Board of Directors are of opinion that the cost of converting the 100 wagons to suit the stone traffic should be borne either directly or indirectly by the Harbour Works, as well as the expense of laying branch lines to the quarries at Ambatoor and elsewhere. The making of the branch lines will of course be at the cost of the Harbour Works, but the conversion of the wagons has, as you are aware, been effected at the Railway Company's expense. I shall be glad to know whether the Government authorize me to send in a bill to Mr. May for the amount expended on the 100 wagons in question.

6. With reference to paragraph 4 of the letter from the Government of India, embodied in the Proceedings of Government referred to, I do not think I can explain the meaning of the expression "the men we must depend upon for working the traffic" better than by referring to the 3rd paragraph of the Traffic Manager's report,* which was forwarded to you with my letter of the 6th of July last, No. 712.

* No. $\frac{\text{C. 577 A \& M}}{\text{1,330}}$, 3rd July 1875.

From R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, to J. MAY, Esq., Superintendent, Harbour Works, dated Madras, 16th September 1875, No. 3,334.

I HAVE the honor to enclose you a copy of a letter from the Consulting Engineer for Railways, and of the Proceedings of Government referred to therein, from which you will learn that the Government of India are not yet satisfied that it will be necessary to double any portion of the Madras Railway in connection with the works for the harbour.

2. I request that you will be so good as to favor me with any observations you may wish to offer upon the subject, and also as to the opinion expressed by the Government of India that if the doubling of the line to Avady is a necessity, a part, if not the whole, of the cost should be borne by the Harbour estimates.

3. If you are now in a position to afford definite information as to whether the 300,000 tons of granite will be required from Tirutany, I shall be glad to receive it.

From J. MAY, Esq., Superintendent, Madras Harbour Works, to R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, dated Madras, 4th October 1875, No. 34 R.

I HAVE the honor to acknowledge the receipt of your letter of 16th ultimo, No. 3,334, with copy of a letter of 14th ultimo, No. 994, from the Consulting Engineer for Railways, and a copy

of the Proceedings of the Madras Government, Public Works Department, dated 2nd ultimo, No. 2,506, from which it appears that the Government of India are not satisfied that " a sufficient case has been established for doubling any portion of the Madras Railway."

2. Before leaving England for this country on the business of Madras Harbour, I was given to understand by Mr. Parkes that, on condition of paying 6 Pies per ton per mile for conveying stone from the interior, a line of railway would be available for such conveyance between the quarries and the work, and on this condition the Harbour estimates have been prepared.

3. A work of this magnitude, consisting of heavy materials to be deposited in the open sea, liable to interruptions from storms, losses of floating plant, and other contingencies, cannot be rigorously carried on without the use of a line of rails, 10 miles in length, from Madras to Ambatoor. For the reasons stated, the stone cannot be deposited in the sea with the regularity which would be required in using the Madras Company's single line, engaged as this line is nearly all day with your permanent traffic. The stone for the harbour must be placed in the piers at any or every hour of the day when the sea may permit that operation, and therefore the delivery from wagons at the terminus cannot be timed to meet the Railway Company's other arrangements. It could not be otherwise than a frequent occurrence that the railway would be occupied with its regular business at the very hours when stone is wanted at the harbour. In cases of harbours constructed elsewhere since railways were invented, Cherburg, Holyhead, Portland, the Channel Islands, Alexandria, where, as here, large quantities of stone were required, the first and indispensable step taken at each of those places was the formation of a railway from the quarries to the work.

4. The reasons here enumerated apply to the proposition of sending the stone for the harbour along the Madras Railway in the night. That proposition could not be safely carried out. The stone could never be deposited in the night time, and all the wagons brought in would accumulate at the terminus. In spite of every care in loading wagons at the quarries, blocks of rubble stone would be continually falling out of them during their journey and would be left on or near the metals to be used for passenger traffic at day-light next morning.

5. Referring to the third paragraph of the letter from the Consulting Engineer for Railways, it is too soon to state positively whether any of the Ambatoor laterite can be substituted for granite in the manufacture of concrete, but I am under the impression that much the largest part of the concrete must be made from granite or stone of equal hardness. There is reason to believe that stone suitable for this purpose exists at two points in the vicinity of the railway, one near Chinnamapett, 36 miles up, and the other near Arconum, 42½ miles up. The quantity of granite required is very much less than the quantity of laterite, and as the former may be unloaded from the wagons more regularly than the latter, there seems no necessity, as far as concerns the Harbour Works, for doubling the railway to Arconum, or further than the laterite quarries at Ambatoor, 10 miles from Madras.

6. The understanding on which the Engineer's estimates for these works have been prepared is stated in the second paragraph of this letter. On the question, whether "the Harbour Authorities should bear a portion if not the entire expense to which the Railway Company may be put to meet their wishes," I have not at present the means of forming an opinion.

From R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, to J. MAY, Esq., Superintendent, Madras Harbour Works, dated Madras, 5th October 1875, No. 3,551.

In acknowledging the receipt of your letter of the 4th instant, No. 34 R., I have the honor to remind you that in the calculations upon which the Railway Company has recommended the Government to sanction the doubling of the line between Perambore and Avady, it has been assumed that 300,000 tons of granite would be required from Tirutany, which would give the railway a lead over about 51 miles. In case you are able, as you anticipate, to obtain the

requisite stone from Arconum or thereabouts, I need not point out to you that a decrease of about 10 miles in the lead of the 300,000 tons of material would considerably lessen the receipts upon which we have been calculating, and it would therefore be necessary to charge a higher rate than 6 Pies per ton per mile for the shorter lead.

2. It is true that your estimates have been based upon the 6 Pies rate, but equally so, I presume, that you have allowed for the expense of obtaining 300,000 tons of stone from a point 51 miles from Madras. I conclude therefore that you will have no difficulty in giving me your assurance that in the event of your anticipation being realized, the Railway Company may look for a corresponding increase in the rate per mile to be charged for carriage.

From J. MAY, Esq., Superintendent, Madras Harbour Works, to R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, dated Madras, 30th October 1875, No. 48 R.

I HAVE the honor to acknowledge the receipt of your letter of 5th instant, No. 3,551, stating that in the calculations upon which the Madras Railway Company have recommended the Government to sanction the doubling of the line between Perambore and Avady, it has been assumed that 300,000 tons of granite would be required from Tirutany for the Harbour Works, and that 6 Pies per ton per mile would be paid by the Harbour Authorities to the Railway Company for carrying the stone from that point to Madras, a lead of about 51 miles.

2. In case granite may be obtained at a point or points nearer to Madras than 51 miles, it would appear to be fair, as you propose, for the Railway Company to charge the Harbour Works a higher rate than 6 Pies per ton per mile for carrying it, thus bringing the total profit for conveying granite to the sum on which the Railway Company originally recommended the Government to authorize the doubling of the line from Perambore to Avady.

Extract from a letter from the Secretary, Madras Railway Company, No. 558, dated London, the 13th August 1875.

As to doubling line between Perambore and Avady.

PARAGRAPH 18.—The Board have perused paragraphs 35 and 39 of your No. 1,165, and the letters from the Chief Engineer and Traffic Manager which accompanied it, and desire me to say that if it is found necessary to double the line from Perambore to Avady, in order to provide efficiently for the speedy conveyance of the large quantity of laterite and stone that will be required daily from Ambatoor and Tirutany, for the construction of the Madras Harbour, they are prepared to undertake the execution of the line in question, as a charge against Revenue if the Government desire it. According to the Chief Engineer's estimate, the cost of the work will be Rupees 3,40,000, while the net profit on the carriage of the stone is expected to be Rupees 4,66,875, and deducting therefrom the cost of doubling the line as above, the result will be, as stated, a clear profit to the Company of Rupees 1,26,875, and a material improvement to the existing line. The Board are of opinion that the cost of converting the 100 wagons to suit the stone traffic should be borne, either directly or indirectly, by the Harbour Works, as well as the expense of laying branch lines to the quarries at Ambatoor and elsewhere. Should these views be approved by the Government you will in due course indent upon the Board for the requisite materials.

(True Extract.)

(Signed) R. B. ELWIN,
Agent and Manager.

Nos. 475 & 476. ORDER THEREON, 22nd November 1875, No. 3,324.

RAILWAY, No. 54-A.

ORDERED that these papers be forwarded for the consideration of the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 477. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Government of India, P.W.D., dated 22nd November 1875, No. 3,325.

RAILWAY, No. 54-B.

Government of India, No. 2,056 R., dated 16th August 1875.
Do. do., 2,172 R., dated 1st September 1875.

SIR,—Adverting to the correspondence quoted in the margin, I am directed by His Excellency the Governor in Council to forward the accompanying reports in which the necessity for doubling a portion of the Madras Railway line for the conveyance of materials for the Harbour Works is shown. It is also explained why the material cannot be carried at night, as suggested by the Government of India. Exception having been taken to the expenditure of Capital funds on the object in view, the Board of Directors express their willingness to undertake the work from Revenue, and I am to recommend this proposal for the sanction of the Government of India.

2. If the doubling of the line be stopped at Ambatoor, the cost would probably be reduced from Rupees 3,40,000 to Rupees 2,20,000.

3. I am to request the orders of the Government of India on the proposal of the Directors, that the cost of converting 100 wagons to suit the stone traffic shall be borne by the Harbour Works. Sanction to the expenditure from Railway Funds was communicated in your letter No. 2,704 R., dated 28th October 1875.

4. A copy of the working time-table of the Madras Railway accompanies this letter, and instructions have been issued for its regular supply in future.

5. In reply to paragraph 4 of your letter No. 2,056 R., dated 16th August 1875, the Agent refers to the 3rd paragraph of the Traffic Manager's Report which accompanied my No. 2,113, dated 24th July 1875.

6. Progress with this most important work being much retarded for want of an additional line of rail, without which this Government are of opinion that it cannot be carried out with speed and safety, I am directed to request that orders sanctioning its construction at least as far as Ambatoor may be communicated by telegraph.

No. 478. Read the following letter from J. MAY, Esq., Superintendent of the Madras Harbour Works, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 8th November 1875, No. 26 G:—

REFERRING to several conversations with you last week on the subject of the town sewers which fall into the sea within the lines of the proposed Harbour, and particularly of the main sewer, 10 feet in diameter, of which the outfall is 106 yards north—north-east of Clive's Battery at Royapooram, I have the honor to report as follows:—

2. I have no particular information of the circumstances which first induced Mr. Parkes to propose the lines of piers defined on a small lithographed plan, accompanying his printed report of 4th November 1873 to the Government, "on the formation of a Harbour at Madras." Without doubt, he considered the advantages of

having the Harbour closely connected with a first-class railway leading into the interior and all over the country. At Royapooram Terminus the main line of the Madras Railway ends at the exact point where the Harbour Works begin. Nothing was required at Royapooram except to extend the Company's metals, level across the beach, into the sea, such extension being the commencement of the North Pier and of the Harbour.

3. A plan of the Royapooram station-yard accompanies this to your address. It will be seen from the plan that there are four lines of railway, colored *blue*, leading into the platforms at the station. These four lines converge into three lines at a point 457 yards west of the terminus, and into a single line at a point 1,000 yards west. Thence the line is single to Vasarpaudy Junction, about $2\frac{1}{2}$ miles west; thence double for 1 mile to Perambore, $3\frac{1}{2}$ miles west; and thence a single line of railway throughout.

4. The laterite quarries at Ambatoor are situated on the north side of the Madras Railway, 10 miles from Royapooram, and it was understood from the beginning that the Ambatoor quarries should be opened to produce the rubble stone deposits required for the Harbour. That was my first instruction. It was also arranged from the beginning that the stone for the Harbour should be conveyed by the Railway Company along their main line, in their own wagons, and delivered at Royapooram to the Harbour authorities. This last arrangement is a bad one, and for various reasons, but chiefly because the conveyance of large quantities of rubble stone, to be deposited in the open sea, cannot be conveniently adapted to the time-tables of a railway, which is also used for carrying goods and passengers.

5. The delivery of stone in Railway Company's wagons at Royapooram being thus a first condition, the next step was to consider which pair, if any, of the four lines of metals leading into the terminus was to be given over for the delivery of the Harbour stone. This was discussed at my first meeting with the Railway authorities (the Consulting Engineer, the Agent, the Chief Engineer, and the Traffic Manager) on 19th June last. One point connected with it appeared to be of some importance: the Ambatoor quarries are on the north side of the railway, and it would therefore be best, if possible, to have the stone delivered on the same side, in order to avoid crossing the passenger line.

6. Besides the main line running into the platform at the terminus, there are several branches to other points in the station-yard. Four of them are approached from the westward by a double road through an arched bridge of bricks under Munnauroosawmy Covil Street. Of these branches, two are employed for the coal and coke department, and the other two for the service of the Engineer's workshops. The Company's requirements prevented me from approaching the North Pier through the coal-yard.

7. These are the considerations which led to the selection of the northernmost pair of metals at Royapooram Terminus for the commencement of this Harbour, and ground was broken on 12th July last at point A on the accompanying plan. The outer end of the laterite surf bank, 30 feet in width on the top, with natural slopes to the bottom, level with the beach tramway, and 13 feet above mean sea level, is now in salt water at B, 643 feet from A. B is 200 feet short of the mouth of Black Town

sewer C; and, advancing at the rate of 10 feet per day, the bank would have been opposite the sewer four weeks hence. This may be prevented without stopping the laterite train from Ambatoor, by applying the rubble to widen the shore end of the bank, as defined by *pink* color on the Pier approach, with the understanding that A B must one day be the permanent road on to the Pier after the Black Town sewer may be got rid of.

8. I saw the mouth of the Royapooram sewer in June last on first landing in India, and I have since seen the periodical operation of cleaning the sewer on the block-ground by a series of man-holes in the crown of the arch, through which the contents are brought up in buckets and buried in the vicinity. I have also waited several times on the President of the Municipal Commission with reference to the pressing difficulty of the sewer.

9. The first remedy we thought of was to extend the sewer 300 feet in its present direction into the sea, that its mouth might be outside the North Pier surf bank. That would have involved the construction, by Divers, of a 10 feet arch in the heavy sea of this coast, and on a foundation which is a quick-sand. The extension of the arch would have been too complicated a work in the time allowed for it.

10. Another suggestion was to extend the sewer through the surf bank by an iron pipe, some 3 or 4 feet in diameter. This, if practicable at all, would only have been half a remedy.

11. A third suggestion appears on the plan, and it consists in diverting the sewer to the northward along the shore on the line L M N O. This may yet be done without interrupting the Harbour Works, because the diversion of the sewer might be carried on under the Pier approach by a bridge. The difficulty in lengthening the sewer is want of fall, which applies to all the sewers in this low-lying city. It would seem that any extension of the Royapooram sewer must be periodically cleaned from the top in the manner described.

12. In view of an early commencement of the general scheme for draining Madras, there are several ways of bringing the North Pier Works, at least for a time, to the south of the Royapooram sewer, and thus to let it fall into the open sea as at present. Three of these are drawn on the plan.

13. It is assumed that the surf bank A B, now in progress, may be temporarily stopped at point B. The letters E F D, show a proposed new railway, colored *pink*, joining one of the Madras Company's lines in the coal-yard at E. If the Railway Company would deliver the laterite at E instead of at A, the line and approach E F D may be made at once crossing the beach road and tramway on the level and joining the original line of the Pier Bank at D. A road in the direction of F D will soon be required at any rate for conveying blocks from the block-ground to the Pier, and this road formed a part of the scheme from the beginning. The Railway authorities will object to the use of their coal-yard and the branch E, which is employed for sending coals to the points required on their line.

14. The letters D F P G define an alternative approach, colored *yellow*, which, if made, would avoid the eastern part of the station-yard, cut off a triangle K, measuring an English acre in area, at the south-west corner, and join the sidings of the station-yard at G under the bridge which carries the traffic of Munnauroo-

sawmy Covil Street. The Railway authorities will also object to this branch, in respect of the corner cut off from the coal-yard at K.

15. There is yet a third way of approaching the Pier D F P H (P H colored *green*) by running up from the beach parallel to the Railway Company's south boundary wall, and parallel to the Royapooram sewer, through the proposed block-ground, avoiding the station-yard altogether, crossing Munnauroosawmy Covil Street on the level, and joining the Company's branch at H. The level crossing at this street also formed a part of the original scheme, because the street is on the road for conveying granite from Tirutany to the block-ground. There is no reason to apprehend much inconvenience to the public from the level crossing of Munnauroosawmy Covil Street, and I hear no complaints of the level crossing made four months since over the beach road and tramway—a still more crowded thoroughfare—opposite Royapooram Terminus.

16. These three methods of approaching the Pier, pending the difficulty of the main sewer, are submitted for the consideration of Government. Objections to the first and second of them will be raised by the Railway Company, and the objection to the third is the level crossing of the street. Any one of the three branches would answer the purpose, and there is no difficulty in constructing them. On the question of economy for the Harbour Works, the first of the three is the best, and the third the worst, proportionally to the lengths of new railways required, stated below:—

	New Railways required.
No. 1, Pink, D F E...	800 Lineal yards, single line.
„ 2, Yellow, D F P G	1,200 „ „
„ 3, Green, D F P H	1,600 „ „

No. 479. ORDER THEREON, 22nd November 1875, No. 3,326.

CIVIL WORKS, No. 32-A.

HIS EXCELLENCY the Governor in Council has no doubt whatever as to the necessity for adoption of the course proposed by the Master Attendant for avoidance of the nuisance that would be caused by including the main sewer within the new Harbour pending the execution of Mr. Clark's drainage works.

2. The bank at present in progress will, therefore, be temporarily stopped, and one of the three alternative new lines of rail adopted for conveyance of the Harbour material. His Excellency the Governor in Council would prefer that described in paragraph 14 of Mr. May's letter, as avoiding an additional level road crossing. But in deference to the interests of the Madras Railway Company, through whose coal-yard it would run, will accept the third line described in paragraph 15; arrangements for laying which he requests may be carried out without delay.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 480. Read the following endorsement of the Consulting Engineer for Railways, dated Madras, 15th November 1875, No. 620 :—

From H. E. CHURCH, Esq., Traffic Manager, to R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, dated Madras, 8th November 1875, No. $C/\frac{58,657}{11,871}$.

Death of a passenger at Goriattum.

I BEG to report the death of a 3rd-class passenger travelling in the 8-30 A.M. train of the 6th instant from Vellore to Goriattum. The corpse was removed at Goriattum station, and the relatives of the deceased who accompanied him say that he had been for some time suffering from fever. The following are the particulars furnished :—

Name, Goolam Moideen. *Sex*, Male. *Age*, 39. *Caste*, Lubbay.

No. 1,129.

To the Consulting Engineer for Railways for information.

MADRAS, (Signed) R. B. ELWIN,
10*th November* 1875. *Agent and Manager.*

SUBMITTED for the information of Government.

2. I learn from the Agent that no inquest was held on the body of the deceased, as the Police were satisfied that he died from natural causes.

(Signed) J. H. M. SHAW-STEWART, Lieut.-Colonel, R.E.,
Consulting Engineer for Railways.

No. 481. ORDER THEREON, 22nd November 1875, No. 3,327.

RAILWAY, No. 55.

RECORDED and communicated to the Judicial Department.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 482. Read the following letter from Lieutenant D. McN. CAMPBELL, R.E., Executive Engineer in charge of the Kistna District, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Masulipatam, 8th November 1875, No. 89 :—

IN submitting the enclosed Controller's list of disallowance, No. 6, dated 3rd August last, I have the honor to bring the following facts to your notice.

2. M. Krishnarow, Deputy Accountant,* on 30 Rupees pay, was promoted by Major Hasted, R.E., to Clerk on 35 Rupees pay in this office, to take effect from 1st May 1875. His successor could not join the 1st Range before 9th June, up to which

* In first Range.

date he (Krishnarow) was paid as Deputy Accountant of the range only; but from that date he was considered as having joined my circuit office, (though detained, with my permission, on account of pressure of work and for delivery to his successor of charge of the duties entrusted to him,) and I thought he was entitled to superior pay; but the Controller objects to pass it on the score that he joined the new appointment on 16th July, which was the date on which he joined my head-quarters office, while he actually joined my circuit office on 9th June—the former date was wrongly entered in my monthly return of arrivals instead of the latter.

3. Under these circumstances, and at the request of the Controller, *vide* paragraph 93 of the Uncovenanted Servants' Vade Mecum, I have further the honor to solicit the favor of your obtaining the necessary sanction of Government to his passing the pay (disallowed by him) from savings pointed out by me in the explanation afforded in the said disallowance list.

No. 483. ORDER THEREON, 22nd November 1875, No. 3,328.

ESTABLISHMENT, No. 29.

THE increased salary of 35 Rupees may be passed to the Deputy Accountant from the 9th June 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 484. Read the following letter from T. D. HARRIS, Esq., Officiating District Engineer, Malabar, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Calicut, 15th November 1875, No. 124 :—

I HAVE the honor to forward an estimate* for repairing the Post Office at Palghaut, and request that Government will be pleased to sanction the same and allot a sum of Rupees 41 from the funds held at their disposal in G.O., No. 1,195, dated 30th April 1875, under "Repairs to Postal and Telegraph Buildings," for the execution of the repairs.

* Rupees 41.

2. The Inspector of the Post Offices of the Calicut Division informs me in his letter No. 5,600, dated 9th instant, that he approves of the estimate.

No. 485. ORDER THEREON, 22nd November 1875, No. 3,329.

CIVIL WORKS, No. 33.

THE available balance under Repairs Postal being only Rupees 31, that amount is allotted to the Malabar District, the balance required will be provided from savings later in the year.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following :—

No. 486. From Mr. P. DORSEY, late Overseer, Department of Public Works, dated 25th October 1875.

No. 486-A. From the District Engineer, Nilgiris, dated 3rd November 1875, No. 357.

No. 487. ORDER THEREON, 22nd November 1875, No. 3,330.

ESTABLISHMENT, No. 30.

MR. DORSEY is informed that his service does not entitle him to pension. Moreover, that an unadjusted deficit of Rs. 114-2-11 is still recorded against him. The Government decline giving him a certificate of character.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 488. Read the following endorsement of the Chief Engineer for Irrigation, dated Camp at Jogunpett, 12th November 1875, No. 1,343 :—

From R. SMITH, Esq., Officiating Superintending Engineer, Nellore, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, dated Nellore, 5th November 1875, No. 63.

I HAVE the honor to submit the annexed report showing the progress made in lengthening the Pennair Anicut from the beginning of operations to the end of September.

2. The early part of the season being unfavorable for working in the deep bed of the river nothing was done there until the 1st of April, when the wells were commenced, and at the close of September the work had progressed to the extent indicated in the subjoined summary :—

I.—Wells completed and filled with concrete, with the exception of six in the line of the retaining wall.

II.—Body wall completed.

III.—First, second, and third binding walls completed.

IV.—Front and rear wings and return raised to an average height of 5 feet above crest of anicut.

V.—Apron between body and first binding wall completed.

VI.—Apron between first and second binding walls completed, with the exception of a few yards at the northern extremity.

VII.—About three-fourths of the ordinary rubble apron between the second and the third binding walls completed.

VIII.—About two-thirds of the retaining wall completed.

3. In addition to the above-mentioned work a temporary wall of masonry 7 feet in height was built on the crest of the new body wall for a length of 405 feet to

admit of the apron being proceeded with during ordinary freshes in the river, and I have to add that the arrangement has answered remarkably well. The northern extremity of this temporary wall is 7 feet higher than the other portion, or 14 feet above the crest of the anicut, and is connected with the left bank of the Pennair by a strong embankment at right angles to the body wall. These precautions, to protect the northern flank of the anicut from injury during the current season by a flood similar to that of 1870, which was the highest* for many years before the unprecedented one of October 1874, appear to me to be absolutely necessary for two reasons—the safety of structure, and the delta cultivation—and I am happy to be able to add that all needful requirements had been completed some time before the usual period for high freshes in the Pennair.

* 12½ feet over crest of anicut.

4. The success that has attended the season's operations is due to the untiring zeal and energy displayed by that able officer, Lieutenant Henderson, R.E. The interest he takes in his work is deserving of particular notice, and I trust his services in connection with the extension of the Pennair Anicut will be appreciated by Government as they are by me.

5. I have also to again bring the services of the Anicut Superintendent, S. Ramiah, to the favorable notice of Government. I formed a high opinion of him during the construction of the rubble dam last year, and I have to add that he has worked from that time to the present date with unabated energy.

6. In conclusion, I beg to state that, judging from the actual progress made, the whole work would now be rapidly approaching completion, if we had not been delayed by the fresh in June and by cholera in July and August.

SUBMITTED for the information of Government.

The progress made on the extension works of the Pennair Anicut at Nellore appears to the undersigned to have been highly satisfactory, and reflects much credit on the arrangements made by the Officiating Superintending Engineer Mr. R. Smith, and on the executive ability and zeal of Lieutenant C. B. Henderson, whose services have been of great value on this important work.

2. The Superintending Engineer also brings to notice the excellent service rendered by the Anicut Superintendent S. Ramiah.

(Signed) JOHN MULLINS, Lt.-Col., R.E.,
Chief Engineer for Irrigation.

No. 489. ORDER THEREON, 22nd November 1875, No. 3,331.

IRRIGATION, No. 48.

THE Honorable the Governor in Council has received with much satisfaction the report of the good progress made on the extension of the Pennair Anicut at Nellore up to the 30th September last, and the Officiating Superintending Engineer Mr. R. Smith is entitled to great credit

for the result of the season's work. The services rendered by Lieutenant C. B. Henderson, R.E., and by S. Ramiah, the Anicut Superintendent, are also fully appreciated.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 490. Read the following endorsement of the Chief Engineer for Irrigation, dated Camp at Jogunpett, 12th November 1875, No. 1,340 :—

No. 2,883.

Statements of Work done to Palar and Poiney Anicuts for October 1875.

FORWARDED to the Chief Engineer for Irrigation.

2. The rain has held off so long as to enable both anicuts to be brought to a condition in which they may be considered entirely safe.

3. I have inspected the Palar Anicut twice, and the Poiney three times, since the Chief Engineer's visit; the progress at the latter work especially has been very satisfactory, the whole of the retaining walls being completed and the rubble apron very nearly so.

4. The Chief Engineer's instructions regarding the raising of the body wall of the weak portion of the Poiney Anicut were not carried out until after two peremptory orders from this office; Mr. Smither states that he considers that the conditions were changed by the completion of the rear retaining wall; but this change had not, at all events at the time of my first visit (on the 22nd October), taken place to such an extent as to warrant the departure from orders.

5. Both works are now secure, and orders have been given to raise the body wall of the Palar Anicut continuously throughout its length; that of the Poiney will be raised as soon as the rubble apron is completed; for the present it is desirable to keep the body wall of the weak portion higher than the rest.

6. The remark regarding the closing of the vents at the Palar Anicut preventing the construction of the cross bunds is not understood; the greater part of the gully is much below the sluice sills, and the closing of the vents is an advantage as preventing movement of water towards them. As a matter of fact, the bunds were almost completed on the occasion of my last visit (the 2nd instant).

VELLORE, (Signed) J. PENNYCUICK, Captain, R.E.,
5th November 1875. *District Engineer, North Arcot.*

To the Chief Engineer for Irrigation.

SUBMITTED for the information of Government.

2. The non-arrival of the north-east monsoon at the usual time has, it will be seen, enabled the work of restoration at the Palar and Poiney Anicuts to make such

progress since the notes of the 18th ultimo No. 1,223 were written, as to render them little liable to damage; while the raising of the crest walls will allow of water being raised to a level which will secure a much better supply of water for irrigation.

(Signed) JOHN MULLINS, Lt.-Col., R.E.,
Chief Engineer for Irrigation.

No. 491. ORDER THEREON, 22nd November 1875, No. 3,332.

IRRIGATION, No. 49.

ORDERED to be recorded.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 492. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 16th November 1875, No. 625 :—

I HAVE the honor to submit, for the sanction of the Government of India, the accompanying indent (to be returned), No. 106, dated 8th instant, on the Board of Directors of the South Indian Railway Company for Platelayers' tools, &c., the approximate cost being Rupees 21,506-4-0.

Nos. 493 & 494. ORDER THEREON, 22nd November 1875, No. 3,333.

RAILWAY, No. 56.

ORDERED that the indent be forwarded for the sanction of the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 495. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Government of India, P.W.D., dated 22nd November 1875, No. 3,334.

RAILWAY, No. 56-A.

SIR,—I am directed to forward, herewith, an indent on the Board of Directors of the South Indian Railway for Platelayers' tools, &c., at an approximate cost of Rupees 21,506-4-0, and to request sanction to its transmission home for compliance.

No. 496. Read the following letter from Captain L. CONWAY-GORDON, R.E., Controller of Public Works Accounts, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 15th November 1875, No. 137 W. :—

ADVERTING to G.O., No. 2,887, of the 8th October 1875, and the Notifications marginally noted, in which the services of Executive Engineer Captain R. F. Taylor are placed at the disposal of the Military Department, I have the honor to inform you that pay for the full month of October 1875 having been claimed, the amount has been passed by this office on the assumption that the Superintending Engineer had not been able up to the end of the month to arrange for Captain Taylor's relief in the Public Works Department.

No. 650 of 1875, in the Military Department, published at page 1,699 of the *Fort St. George Gazette* of the 12th October 1875. Public Works Department Notification of 19th October 1875, published at page 1,759, of do. do.

2. Looking, however, to the dates of the Notifications above quoted, it has been suggested to the Superintending Engineer that, in the event of its being found necessary to retain Captain Taylor's services for a lengthened period in this month, application be made to Government for sanction to the arrangement.

No. 497. ORDER THEREON, 22nd November 1875, No. 3,335.

ESTABLISHMENT, No. 31.

PUBLIC WORKS order* of 19th October quoted by the Controller, placing the services of Captain R. F. Taylor at the disposal of the Military Department from such time as they may be availed of, would appear clearly to entitle Captain Taylor to pay in the Public Works Department until actually relieved. It does not appear therefore that additional orders are erquired.

* Page 1,759 of *Fort St. George Gazette*, dated 19th October 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 498. Read the following :—

No. 1,330.

Note by the Chief Engineer for Irrigation.

No. 1,670, 29th October 1875.

THE following estimate has been submitted by the District Engineer, Cuddapah :—

Yellutla Kottam Razu Tank		Rupees	135
Ayacut area	Government	Acres	13
	Inam	,,	3
Do. assessment.	Government	Rupees	113
	Inam	,,	27
Highest revenue		,,	105
Average do.		,,	88

There is no record of past expenditure.

2. The tank has a catchment basin of three square miles, and there are ten tanks above, four of which have surplus weirs, and six are Dasabundum without regular weirs, but surplus is discharged by natural escapes. The tank has a surplus weir fifty feet long, and the bund being out of order was topped by the water in the flood of October 1874, but was saved from breaching by a cut made by the villagers.

3. The present estimate provides for raising the bund to six feet above F.T.L., and it will then be quite safe and efficient.

(Signed) JOHN MULLINS, Lt.-Col., R.E.,
Chief Engineer for Irrigation.

CAMP AT BALASAMUDRUM,
11*th November* 1875.

No. 499. ORDER THEREON, 22nd November 1875, No. 3,336.

IRRIGATION, No. 50.
Account.

THE following estimate is sanctioned :—

Repairing Yellutla Kottam Razu Tank ... ... Rs. 135 chargeable to Revenue.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 500. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 15th November 1875, No. 619 :—

I HAVE the honor to forward, for the sanction of the Government of India, an estimate,* amounting to Rupees 16,837, for a bridge of four 25-feet girder openings, at 13 miles 78 chains on the Arconum-Conjeveram branch of the South Indian Railway, to replace the three 14-feet openings destroyed by the floods of October 1874.

* With plan No. 423-A.

2. As recorded in the Proceedings of Government, dated 9th December 1874, No. 3,459, the waterway afforded by the former structure proved to be insufficient, and the proposed increase is not considered too large. Owing to greater headway allowed, and to the increased depth of the girders, the line will be raised nearly six feet, thus still further adding to the waterway, while decided improvement in the gradients will also be effected.

3. The location of the line at this point will not be affected by the improvements which it is proposed to make in the alignment, in the event of sanction being accorded to its conversion to the metre gauge and extension to Chingleput. The only course which would render the work unnecessary would be the dismantling and abandonment of the line.

4. I regret that I have not as yet been in a position to reply to the order of Government, No. 3,606, dated 22nd December 1874. Owing to press of work in the Chief Engineer's office, some of the required information has only just now been received, and a reply to a further reference is awaited before the subject can be fully dealt with.

5. The sum of Rupees 10,595, being the estimated cost of renewing the original bridge, is chargeable to Revenue, and the balance, Rupees 6,242, to Capital. The latter amount will be met by transfers from the sum allotted in the current year's Budget for the Palar bridge, at 42 miles 65 chains, Northern Extension. The sanction will lapse on 31st December 1876.

Nos. 501 & 502. ORDER THEREON, 22nd November 1875, No. 3,337.

RAILWAY, No. 57.

ORDERED that the sanction of the Government of India be requested to the proposed expenditure.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 503. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Government of India, P.W.D., dated 22nd November 1875, No. 3,338.

RAILWAY, No. 58.

SIR,—In forwarding the accompanying plan and estimate, amounting to Rupees 16,837, for a bridge of four 25-feet girder openings to replace one of three 14-feet openings on the Arconum-Conjeveram section of the South Indian Railway, I am to invite attention to the report* of the Deputy Consulting Engineer which was made after an inspection of the line shortly after the floods of October 1874. It will be seen that His Excellency the Governor in Council recognized the necessity for increased waterway to pass the drainage of the surrounding country, and suggested the revision of the details in connection with the conversion of the line to the metre gauge. This subject is, however, not yet ripe for decision and it is now proposed to make the required increase to the waterway at 13 miles 78 chains without further delay. Concurring in the propriety of the proposal, His Excellency the Governor in Council solicits the sanction of the Government of India to the requisite outlay, Rupees 6,242 of which are chargeable to Capital.

* *Vide* Proceedings, No. 3,459, dated 9th December 1874.

No. 504. Read the following endorsement of the Consulting Engineer for Railways, dated Madras, 16th November 1875, No. 624 :—

From R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Madras, 12th November 1875, No. 1,133.

WITH reference to the enclosed extract, paragraphs 7, 8 and 9 from my letter to the Secretary, No. 1,167, dated the 27th July 1875, and to paragraph 12 (copy enclosed)

of the Board's letter, No. 559, of the 8th October 1875, I have the honor to request that you will be so good as to communicate to me the sanction of Government to the promotion of Mr. G. E. Smith from the grade of second to that of first-class Assistant Engineer, with effect from the 8th October 1875, the date of the Board's letter.

2. An application in the usual form is annexed.

Extract from a letter from the Agent and Manager, to the Secretary, Madras Railway Company, dated Madras, the 27th July 1875, *No.* 1,167.

Promotion of Mr G E. Smith, from the grade of second to that of first-class Assistant Engineer.

PARA. 7. I beg to enclose, for the favorable consideration of the Directors, copy of a letter from the Chief Engineer, No. 515, of the 17th July 1875, in which he recommends the promotion of Mr. G. E. Smith from the grade of second to that of first-class Assistant Engineer.

8. Mr. Anderson writes as follows:—

"Mr. Smith entered the Company's service as a fourth-class Engineer on 20th November 1866, was promoted to the rank of third-class on 20th November 1868, and to that of second-class on 28th April 1871.

"He was employed on construction of the North-West Line up to December 1870; was in charge of 3rd Division, South-West Line, from April to December 1871; and of the 1st Division, North-West Line, from December 1871 to February 1873; he was then appointed to the 3rd Division, North-West Line, for a short period; and was afterwards again transferred to the 1st Division, North-West Line, of which he remained in charge up to December 1873. He then proceeded to England on a year's furlough, and returned to duty in December 1874, from which date he has been in charge of the 1st Division, North-West Line.

"Mr. Smith has always exhibited great energy and zeal in the performance of his work, and has given me entire satisfaction in the manner he has carried on his duties during the whole period of his service."

9. I am happy to be able to endorse what Mr. Anderson states as to Mr. Smith's energy and zeal, and I trust that the Directors will consider that the length and nature of his services entitle him to the promotion for which he is now recommended.

(True Extract.)

(Signed) R. B. ELWIN,
Agent and Manager.

Extract from a letter from the Secretary, Madras Railway Company, dated London, the 8th October 1875, *No.* 559.

Promotion of Mr. G E. Smith from second to first-class Engineer.

PARA. 12. Adverting to paragraphs 7 to 9 of No. 1,167, I have to inform you that the Board, on your and the Chief Engineer's recommendation, sanction, subject to the approval of Government, the promotion of Mr. G. E. Smith from the grade of second to first-class Engineer.

(True Extract.)

(Signed) R. B. ELWIN,
Agent and Manager.

MADRAS RAILWAY.

Application from the Agent and Manager, requesting an expression of the views of Government as to the promotion of the under-mentioned Officer:—

Department.—Engineering. *Name.*—G. E. Smith. *Office.*—Second-class Assistant Engineer. *Present Salary.*—£725 per annum. *Date of entertainment in the Company's Service.*—20th November 1866. *Office and Salary proposed.*—First-class Assistant Engineer, £850 per annum.

Grounds on which the proposal is made.—Length of service, and general efficiency. *Remarks by the Consulting Engineer for Railways.*—None.

MADRAS, (Signed) R. B. ELWIN,
12th November 1875. *Agent and Manager.*

SUBMITTED for the favorable consideration of Government, in view to the proposed promotion being laid before the Government of India for sanction.

2. Mr. G. E. Smith entered the Madras Railway Company's service on the 20th November 1866 as a fourth-class Engineer, and was promoted to third-class on the 20th November 1868. His promotion to second-class is recorded in Proceedings of Government, No. 315, dated 1st February 1871.

(Signed) J. H. M. SHAW-STEWART, Lt.-Col., R.E.,
Consulting Engineer for Railways.

Nos. 505 & 506. ORDER THEREON, 22nd November 1875, No. 3,339.

RAILWAY, No. 59.

ORDERED that the application be forwarded for the consideration of the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 507. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Government of India, P.W.D., dated 22nd November 1875, No. 3,340.

RAILWAY, No. 60.

SIR,—I am directed to forward, for the consideration of the Government of India, the accompanying application for the promotion of Mr. G. E. Smith, an Assistant Engineer on the Madras Railway. Mr. Smith has held his present rank, that of Assistant Engineer, second-class, since February 1871, and the Board of Directors consider that his services are now entitled to further recognition.

No. 508. Read the following letter from Lieutenant-Colonel J. F. FISCHER, R.E., District Engineer, Madura, to Major-General G. W. WALKER, R.E., Chief Engineer, Public Works Department, dated Camp at Dindigul, 8th October 1875, No. 2,811:—

1. Mr. Gill's letter, No. 119 $\frac{A}{1}$, dated 3rd July 1875.
2. Pencil measurement.
3. Taluq Overseer's order.
4. Copy of complaint.
5. Summons.
6. Do.
7. Plaint.
8. Demi-official letter.
9. Mr. Hawksworth's docket, No. 138, dated 31st May 1875.
10. Answer.

I HAVE the honor to acknowledge the receipt of G.O. of the 30th September 1875, No. 2,823, and regret very much to find the Government are not satisfied with the reports I have made regarding the Contractor who has instituted a suit against the late Range Officer, Dindigul Range; but, I beg to premise, that officer left the matter on my hands in so incomplete and unsatisfactory a manner, though he had had ample time and opportunity to take all necessary steps for defending the suit, never even intimating to me till he had

left the district that such a proceeding was being adopted, I at once sent up the case to the Government for orders and instructions.

2. On receipt of G.O. of the 23rd June 1875, No. 1,768, I went deliberately over a great portion of the road with the Contractor, who distinctly pointed out the remains of several heaps of gravel and stone for which he claimed payment so far back as 1872-73, on contract with Overseer Mr. Jackson, who left the district in November 1873. I inquired then of Overseer Soonder Rao, who had relieved Mr. Jackson; he stated that the materials had been collected and he had ordered the stone to be broken, which the Contractor was doing when he himself was suddenly transferred to another part of the range. I also inquired of Mr. Overseer Gill, who succeeded Soonder Rao, who admits the materials were used by a maistry, Ramasawmy Naik, employed on the road in the belief they were the property of the Government; that he and Mr. Hawksworth saw the remains of several of the heaps, but the Range Officer refused to pay anything at all as he fancied there was some collusion between the maistry and the contractor, and did nothing further in the matter whatever until the man put him into Court, when he detained all the papers connected with the case until he was leaving the district.

3. There is absolutely nothing further to be ascertained from the Range Office records, the only document I have is that referred to in paragraph 2 of G.O. of 23rd June 1875, No. 1,768; and having made all the inquiries I could as required by this order into the man's claims, I suggested Mr. Hawksworth should be directed to return to this district to defend this suit, as the man distinctly showed the remains at least of the materials for which he claimed payment, and I had no means of rebutting his allegations, the Overseers of the district remaining in it admitting all the material points at issue, and I knew Mr. Hawksworth never made any proper inspections or check measurements at all even for the most important works of his range.

4. I did not see how I could compromise the matter at all as I had no funds, and reported this in my first letter, in G.O. of the 23rd July 1875, No. 2,095; on receipt of these further orders, I asked Lieutenant Boddy, R.E., to dispose of the matter, and he is as satisfied as I am that materials must have been collected, but that the man is now willing to take Rupees 425, the amount of his original bill, as shown in the document* herewith returned, foregoing interests, &c., &c.

* "Marked 7."

5. In conclusion I beg to return the papers connected with the case, having done my best as well as I could judge for the interests of all parties; having had occasion to report Mr. Hawksworth repeatedly to the Government for his neglect and dereliction of duty, I could not but feel I had a most invidious duty to perform to report against him again in this matter. The Government only called on me to make inquiries and a further report as to the man's claims, and this I did, not considering I was called upon to detail in full how I had arrived at my conclusions, but proposing Mr. Hawksworth should be directed to return and defend his own case. I have been using my best endeavours to see that the works are being carried out in some satisfactory manner, and proper records maintained for the outlay. Mr. Hawksworth did his best to create as much confusion and trouble as he could; and I had to visit his range almost monthly to ensure any progress whatever being made, and it is therefore a matter of deep regret to me that my endeavours have not satisfied the Government, but I trust

the report now submitted will explain that I had done all that could be done under the circumstances, and only erred in not sending up the details on which I had based my conclusions; but from several orders of Government we have been directed not to trouble them with such original documents. I have only to add that the case has been again postponed for a couple of months from the 30th September 1875, and considering the length of time the Contractor has already been kept out of payment for materials which he must have collected and paid for himself, and the interest on this outlay he has been losing all this time, I beg to solicit the Government will be pleased to sanction payment being made to him at once from Repairs, Communications, Local.

No. 509. ORDER THEREON, 22nd November 1875, No. 3,341.

ESTABLISHMENT, No. 32.

THERE has been great negligence on the part of the Range Officer throughout this case, and also on the part of the District Engineer, if it be true, as alleged in paragraph 5 of the plaint, that the plaintiff petitioned the District Engineer on the subject and was referred by him on the 27th February to a civil action, without apparently any effort having been made by Colonel Fischer to get at the facts of the case. He has made no allusion in any of his letters to this allegation of the plaint; but neither has he, from first to last, made any attempt to lay before Government a connected statement of the case. He has done little else but send up imperfect documents without attempting to account for or explain their imperfections. Mr. Hawksworth no doubt has behaved with culpable negligence throughout, as already stated; but the District Engineer does not appear to have taken any steps whatever to remedy the effects of such negligence.

2. After the lamentable delays that have occurred in this case, and in view of the punishment already imposed on Mr. Hawksworth for his neglect and disregard of orders, the Governor in Council resolves to instruct the District Engineer to carry into effect the compromise which it is stated will be accepted by the plaintiff.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following paper:—

No. 1,349.

No. 510. *Note by the Chief Engineer for Irrigation.*

No. 3,396, 4th November 1875.

THE following estimates have been submitted by the District Engineer, Presidency. The estimates are for some of the tanks in the neighbourhood of Madras, for which, on a representation being made by the President of the Municipal Commission of their dangerous state, were ordered to be repaired and afterwards transferred to the charge of the Deputy Collector of Madras. It was anticipated that the

Proceedings of the Madras Government, No. 82, dated 13th August 1873.

utlay othen sanctioned would have sufficed for many years, but there appears to be a probability of a demand for expenditure out of proportion to the revenue of these works.

Nungambakum Tank	Rupees 220
Area of irrigation	Acres 161
Quit-rent	Rupees 747

Expenditure in the last four years, Rupees 5,105.

The work provided for is an extension of the bund across ground now intersected by a ravine, by which the tank water escapes into the Cooum, and the levelling of the ground for 200 feet beyond the intended end of the bund to allow of the escape of water on the occurrence of very heavy rainfall.

Mylapore Tank	Rupees 930
Area of irrigation	Acres 887
Quit-rent	Rupees 3,811

Expenditure of the last four years, Rupees 6,346.

The work to be done is of the ordinary description and requires no remark.

Spur Tank	Rupees 70
Area of irrigation	Acres 25
Quit-rent	Rupees 157

Expenditure on repairs (1873-74), Rupees 1,206.

The estimate provides for trifling repairs which probably are mainly rendered necessary by the traffic on and over the bund.

Veyaserpady Tank	Rupees 1,000
Area of irrigation	Acres 493
Quit-rent	Rupees 1,207

Cost of repairs in the last four years, Rupees 10,824.

The only item that calls for notice is the rate, Rupees 1-12-0, for fully backing for revetment, which, seeing that this tank is not far from the hills whence this material is obtainable, appears to be about double the proper rate.

CAMP AT PEDDATHIPPOO-
SAMUDRAM,
9*th November* 1875.

(Signed) JOHN MULLINS, Lt.-Col., R.E.,
Chief Engineer for Irrigation.

No. 511. ORDER THEREON, 22nd November 1875, No. 3,342.

IRRIGATION, No. 51.
Account.

THE following estimates are sanctioned :—

Presidency District.

		RS.
Nungambakum	Tank	220
Mylapore	do.	930
Spur	do.	70
Veyaserpady	do.	1,000

The attention of the Revenue Board will be requested to the cost of the upkeep of these tanks, on which a similar rate of expenditure cannot be provided for in the

future without depriving other irrigation works of the money required for ordinary and moderate repairs costing on the average about 8 or 10 per cent. of the revenue.

2. The District Engineer should examine into the rate allowed in the Veyaserpady Tank estimate for backing to the revetment.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following papers :—

No. 1,341.

No. 512.

MEMORANDUM.

THE undersigned has the honor to acknowledge the receipt of the letter, No. 3,212, of the 2nd instant, from the Superintending Engineer, Chingleput, and in reply to request Colonel F. Moberly to be good enough to go fully into the matter of the land required for the Chembrumbaukum Tank.

2. With his letter, No. 1,818, of the 10th August last, the Superintending Engineer transmitted a memorandum from the Acting Collector showing that about Rupees 50,840 would be needed during the current year for the payment of compensation, and in reply certain information was asked for, which, with the exception of the first and very important item, *viz.*, the amount provided on this account in the sanctioned estimate, has been shown in a statement transmitted with the letter under reply; but apparently without any examination by the Superintending Engineer into the facts shown, an examination which the following remarks will show to be imperative.

No. 916, 14th August 1875.

3. In the abstract estimate printed in Proceedings, Madras Government, of the 17th May 1873, No. 1,377, the sum entered on account of compensation is Rs. 9,720, and the way in which this sum was arrived at is also detailed.

4. It appears from a table given in Proceedings, Madras Government, 9th March 1871, No. 705, that the area of the tank as

carried out on the 6 feet scheme is ...	Sqr. yards	27,731,000 =	5,729	Acres.
and that of the old full tank contour, *viz.*, top of dam stones	"	22,496,201 =	4,648	"
		Difference ...	1,081	"

In the statement, dated 21st October 1875, on the other hand, it is mentioned that 4,921 acres are the area to be taken up for the project, and it would seem therefore that land is being acquired for the 15-feet project of Mr. Fraser which has been long since abandoned. Even this, however, would not explain the large area supposed to be necessary, for the area of the reservoir at the 15-feet contour is only ... Acres 7,190

That is, it was between F.T.L.	and that at the crest of the old calingulahs which was not fromer. F.T.L. is	"	4,522
	Difference ...	"	2,668

so that it is very evident that measures must be taken at once for deciding what lands are required for the project as it has been carried out, for settling what part of this area has to be purchased, and at any rate approximately what the cost will be, a settlement which, it is believed, may very easily be effected.

5. The Superintending Engineer is requested to take immediate steps,—

1st.—For ascertaining the area of the tank bed before it was extended. This can probably be determined from the Revenue Survey Map, but if not the former full tank level must be settled definitely and a contour must be run and laid down on the Survey Map.

2ndly.—For laying down on the ground and demarcating the present full tank level and plotting this on the Revenue Survey Map.

3rdly.—For determining the area between the two contours under,

(1.) Government Poramboke waste;

(2.) Lands for which compensation has been or has to be paid.

6. All lands lying outside the full tank contour which may have been paid for should be resold under arrangements which will have to be made by the Collector, and probably their retransfer to their former owners with a refund of the compensation will generally be practicable. All lands so situated which have not been paid for will of course now not be acquired.

7. The Superintending Engineer is authorized to employ a Surveyor to lay down the contour line of the present F.T.L., and, if necessary, of the former F.T.L., and he should take care that no delay is allowed to occur, and that proper arrangements are made in communication with the Collector for the permanent demarcation of the present F.T.L. contour. All the demarcation stones should be marked C.T., and palmyra seeds should be sown in the lockspitting between the stones.

CAMP AT PEDDATHIPPOO-
SAMOODRUM,
9th November 1875.

(Signed) JOHN MULLINS, Lt.-Col., R.E.,
Chief Engineer for Irrigation.

No. 1,342.

No. 512-A. *Note by the Chief Engineer for Irrigation.*

THE Superintending Engineer, Chingleput, having transmitted a memorandum from the Collector, intimating that about Rupees 50,840 would be required in the current year for land compensation in connection with the Chembrumbaukum Tank Project, was requested to furnish certain information as to—

No. 1,818, 10th August 1875.

No. 916, 14th August.

1st,—the sanctioned amount on this account;

2nd,—the total acreage required;

3rd,—the acreage already paid for;

4th,—the cost of this area;

and in reply he has transmitted a letter and statement from the Collector affording some of the information asked for.

No. 3,212, 2nd November.

2. The amount provided in the revised or 6-feet project for the tank is Rs. 9,720, and, as far as can be ascertained from the records of the project, the extent of land required is the difference between the former area of the tank ... ... Acres 4,648
and the area at the present F.T.L. ... ... " 5,729

Difference ...	"	1,081

It appears from the Collector's statement that the area supposed to be required is acres 4,921, of which acres 2,316 are entered as Government Poramboke waste, and acres 2,605 as lands to be acquired by purchase, while of the latter area acres 817 have been purchased at a cost of Rupees 26,458.

3. It would seem then that land for the 15-feet project long since abandoned is being acquired; but even this does not explain fully the large area represented to be needed, for the area of the tank of the 15-feet project is acres 7,190, and of the old tank at—

Calingulah crest level...	4,522
Top of dam stones	4,648

the difference being in the one case 2,668, and in the other 2,542 acres. These areas have been deduced from the table printed in Proceedings, Madras Government, No. 705, of the 9th March 1871, and they may not be accurate, but nevertheless the information available should have sufficed to show the Superintending Engineer that inquiry was necessary, and the demand for a sum so much in excess of the estimated cost should have led him to investigate the circumstances.

4. The instructions sent to the Superintending Engineer are submitted for the information of Government.

CAMP AT PEDDATHIPPOO-SAMOODRUM,
9*th November* 1875.

(Signed) JOHN MULLINS, Lt.-Col., R.E.,
Chief Engineer for Irrigation.

No. 512-B. From Colonel F. J. MOBERLY, R. E., Superintending Engineer, Chingleput, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, dated Guindy, 2nd November 1875, No. 3,212.

WITH reference to your memorandum, No. 916, dated 14th August 1875, I have the honor to enclose copy of a letter, No. 611, dated 21st October 1875, and statement, received from the Collector of Chingleput, showing the particulars of land required, &c., for the Chembrumbaukum Tank Project as therein called for.

1 Copy of Letter.
1 " of Statement.

From R. J. MELVILLE, Esq., Acting Collector of the Chingleput District, to Colonel F. J. MOBERLY, R.E., Superintending Engineer, Chingleput, dated Chingleput, 21st October 1875, No. 611.

REFERRING to your docket, No. 2,142, dated 30th August last, on the Chief Engineer's memorandum, dated 14th idem, I have the honor to forward a statement containing the required

information. It will be seen from the statement that the extent submerged by the Chembrumbaukum Tank is acres 4,921·31, for acres 816·71, of which compensation has already been paid, the amount disbursed being Rupees 26,458-2-8 ; acres 2,316·30 are Poramboke or unassessed Government waste for which no money compensation need be paid, so that the extent for which compensation still remains to be paid is acres 1,788·30. The last-named acreage may possibly include some unassessed waste lands, but I have no means of stating accurately what the exact area will be, as the Special Deputy Collector has not as yet examined the lands or the accounts of one of the estates.

2. The question of compensating Muttadars and Shrotriemdars for the loss of their melwaram or landlord's share, will have to be treated separately hereafter as soon as the necessary statistics have been collected to determine the rent value of the lands taken up. Compensation or loss of melwaram to Muttadars and other proprietors is generally given by deducting from the peishcush or quit-rent, as the case may be, a sum equivalent to the rent value of the lands lost to the proprietor, but cases may arise where it may be necessary to grant money compensation for past years.

3. I have no information in my office as to the amount sanctioned in the estimate on account of compensation in connection with the project in question, but I have no doubt this information can be supplied from the records of your office.

Statement showing the Acreage required for the Chembrumbaukum Project.

Taluq.	Amount sanctioned in the Estimate.	Total extent required for the Project.	Deduct Poramboke Government waste for which compensation is not required to be paid.	Remainder.	Extent for which compensation has already been disbursed.	Amount of Compensation paid. Land.	House, Trees, &c.	Total.	Extent for which compensation has to be disbursed and settled.
1	2	3	4	5	6	7	8	9	10
		ACRES.	ACRES.	ACRES.	ACRES.	RS. A. P.	RS. A. P.	RS. A. P.	ACRES.
Saidapett ...	...	3,775·68	1,895·24	880·44	742·97	23,433 8 10	307 8 0	23,741 0 10	137·47
Conjeveram...	...	2,145·63	421·06	1,724·57	73·74	2,717 1 10	...	2,717 1 10	1,650·83
Total...	...	4,921·31	2,316·30	2,605·01	816·71	26,150 10 8	307 8 0	26,458 2 8	1,788·30

CHINGLEPUT,
21*st October* 1875.

(Signed) R. J. MELVILLE,
Acting Collector, Chingleput.

(Signed) F. J. MOBERLY, Colonel, R.E.,
Superintending Engineer, Chingleput.

No. 513. ORDER THEREON, 22nd November 1875, No. 3,343.

IRRIGATION, No. 52.

THE Honorable the Governor in Council has learnt with much dissatisfaction from the foregoing papers that the

acquisition of land for the Chembrumbaukum Tank Project has been going on without reference, either to the actual area of land required, or to the amount of sanction for this item of the estimate; without also any representation by the Superintending Engineer or by the Controller of Public Works Accounts that this sanction had already been largely exceeded, and any investigation by the former officer into the correctness of the demand transmitted by him in August for a sum for expenditure on compensation which was between five and six times the total amount sanctioned. It is clear that arrangements were being made for acquiring land for a project which has long since been abandoned, and it seems probable that some land altogether outside the F. L. contour of the tank as carried out has been taken up.

2. It is evidently the duty of Public Works Officers to show, both on paper and on the ground, the land required, and without information from them the Revenue Officers cannot possibly tell what its boundaries are. In the present case it would seem that no steps were taken to inform the Collector of the difference of boundary of the land required for the 6-feet project, and although it was perfectly clear from the Proceedings of Government, which was communicated to the Revenue Department, that a wide difference existed between the amount originally and subsequently allowed for compensation, it certainly ought not to have been left to the Revenue Officers, either to discover that the circumstances of the project, as regards lands required, had been completely changed, or to find out that a new boundary line had to be laid down.

3. The instructions of the Chief Engineer for Irrigation to the Superintending Engineer are approved, and Colonel Moberly will lose no time in carrying them out.

4. These Proceedings will be communicated to the Board of Revenue in order that the necessary steps may be taken at once by the Collector for determining the extent of Government Poramboke waste and other lands between the old and new full tank level contours, and for settling, as accurately and as quickly as may be possible, the amount for which sanction must be provided. The compensation being an item of the revised estimate, which has to be submitted to the Government of India, and which has been several times called for, it is necessary that a fairly reliable calculation of the amount should be made without delay.

5. The Superintending Engineer will report specially as soon as he has had the contours marked out, and he will transmit to the Chief Engineer for Irrigation a copy of the maps on which these contours may be shown and which he will have sent to the Collector for guidance in taking up the land.

6. It must not be overlooked that the assessment of all lands is required to be stated in order that the requisite provision in the estimate, on account of the capital amount represented, may be made.

7. The Superintending Engineer's and the Controller's attention will be called to G.O., No. 1,042, dated 15th April 1875. They will take care that the instructions therein given are in all cases duly attended to.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 514. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 19th November 1875, No. 631 :—

ADVERTING to the Proceedings of Government, No. 2,115, of the 24th July last, I have the honor to intimate that steps have been taken to give effect to the wishes of the Government of India as expressed in paragraphs 2, 3, and 4, of their letter therein embodied.

2. The cause of the reductions in the numbers of high-sided open goods and ballast wagons is explained in the enclosed letter from the Agent* and Manager of the Madras Railway, who states that he must take the opinion of his Board of Directors in regard to crediting to Capital the original cost of the worn-out vehicles, adding that "if it is an equitable course to deal with losses of rolling stock in the manner proposed, they will probably look for any additions to the stock being charged to Capital."

* No. 1,130, dated 11th November 1875.

3. The discrepancy referred to in paragraph 6 attracted attention sometime ago; and is due to the fact that, for statistical purposes, every fraction of a mile over 20 chains is counted as a mile, this being the method adopted in calculating charges made by the Traffic Department. In Statement XIII. the mileage open is correctly given as $856\frac{3}{4}$.

4. Every endeavour has been made to introduce the credit note system of payment among all Government Departments, and, as reported in the Minutes of Meeting embodied in the Proceedings of Government, No. 945, of the 10th April 1875, it was resolved that notice be given to traders then having open accounts that such accounts would be closed on and after the 1st July 1875. This has now been carried into effect.

From R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Madras, 11th November 1875, No. 1,130.

IN reply to your letter No. 881, of the 11th of August last, I have the honor to inform you that there is no objection to the suggestion made in paragraph 4, as the Government desire it.

2. With reference to paragraph 5 of your letter, the Locomotive Superintendent offers the following explanation :—

"The reductions of thirty-four high-sided open goods wagons, and of fourty-four (33 and 11) ballast wagons were shown in the statements of rolling stock for the half-years ending 31st December and 30th June last respectively, in consequence of the woodwork of these wagons having been condemned, and the ironwork having been broken up and placed in store.

"With regard to the high-sided open goods wagons, the Traffic Manager informs me that it is necessary that they should be renewed. I have therefore, in the rolling stock statement for the month of August 1875, shown the number of this class of vehicle as increased to the same extent as previously reduced, *viz.*, by thirty-four wagons.

"The woodwork of the ballast wagons being unfit for further use, and its renewal being considered unnecessary, these wagons were dismantled, and the ironwork has been received into store.

" The following is the valuation of the ironwork received into stores here, belonging to the forty-four ballast wagons referred to :—

				RS.	A.	P.
" Original cost of ironwork of one wagon				971	0	0
" Less—						
" Value of bolts, axle brasses and tyres entirely worn out	261	2	0			
" Bearing and buffer springs partially (estimated as half) worn out	106	2	0			
" Estimated deterioration through wear and tear of remainder of ironwork	100	0	0			
				467	4	0
" Estimated value of ironwork per set returned to stores ...				503	12	0

" At the above valuation the forty-four sets of ironwork would, on return to stores, bear a money value of Rupees 22,165."

3. As regards the inquiry made by the Government of India as to whether the original cost of the vehicles broken up has been credited to Capital, I beg to say that I must take the opinion of my Board before writing off any of the capital stock. If the Directors agree that it is an equitable course to deal with losses of rolling stock in the manner proposed, they will probably look for any additions to the stock being charged to Capital.

Nos. 515 & 516. ORDER THEREON, 22nd November 1875, No. 3,344.

RAILWAY, No. 61.

ORDERED that these papers be forwarded for the information of the Government of India.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 517. (DOCKET No. 3,345, dated 22nd November 1875.)

COPY of the above forwarded to the Government of India with reference to their letter No. 1,719 R., dated 10th July 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 518. Read the following letter from Colonel F. J. MOBERLY, R.E., Superintending Engineer, Chingleput, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Guindy, 17th November 1875, No. 3,460 :—

I HAVE the honor to forward, for the sanction of Government, an estimate for Rupees 440 approved by His Excellency the Commander-in-Chief for providing iron wire nets, &c., to the windows in the Commissariat Godown at Mount.

No. 519. ORDER THEREON, 23rd November 1875, No. 3,346.

MILITARY WORKS, No. 16.

SANCTIONED.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 520. Read the following letter from Captain R. F. MORRIS, R.E., District Engineer, Trichinopoly, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Trichinopoly, 15th November 1875, No. 695 :—

IN reply to your memorandum, No. 646, dated the 3rd instant, I have the honor to report that there are no allotments under Repairs Imperial or Provincial which may be surrendered; but I would request that a sum of Rupees 600 under Military Minor New Works may be transferred to Military Repairs, as the grant under that service has been exhausted and several requisitions from the Military authorities remain to be complied with.

From Rupees 1,700 granted in G.O., No. 261, dated 29th January 1875.

No. 521. ORDER THEREON, 23rd November 1875, No. 3,347.

MILITARY WORKS, No. 16-A.

THE sum of Rupees 600, stated to be available for transfer from the grant for Minor New Works Military in the Trichinopoly district, will be held at the disposal of Government, and a similar amount is allotted to that district from the amount at the disposal of the Chief Engineer under Repairs Military.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following papers :—

No. 522. From the Officiating District Engineer, Tinnevelly, dated 10th August 1875, No. 58.

No. 522-A. From J. D. GRANT, Esq., Officiating District Engineer, Tinnevelly, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Puthugudi, 25th October 1875, No. 90.

As directed by you in your memorandum, No. 420, of 20th August last, I have the honor to enclose an estimate for certain articles required for the Northern Range of this district, and to request sanction.

One estimate for Rupees 310.

2. The Superintendent of Public Works Stores has informed me that Rs. 220 is the cost of a fireproof safe at Madras, he having none in store; but I can procure one here sufficiently good for the purpose required for Rupees 100, though it is not of Chubb's make.

No. 523. ORDER THEREON, 23rd November 1875, No. 3,348.

ACCOUNT, No. 13.

THE supply of the articles and instrument detailed in the District Engineer's estimate is sanctioned, and an allotment of Rupees 310 will be made under Tools and Plant Provincial from the amount held at the disposal of Government in G.O., No. 2,956, of 15th October 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 524. Read the following endorsement of the District Engineer, Presidency, dated 20th November 1875, No. 3,646 :—

From J. N. GRAINGER, Esq., General Superintendent of Public Works Stores and Workshops, to Captain R. THOMPSON, R.E., District Engineer, Presidency, dated Chepauk, 19th November 1875, No. 1,039.

I HAVE the honor to return, for transmission to Government, the Packing Account of Mysore Foreign Funds Stores per S.S. *Hutton*, dated 15th July 1875.

One Packing Account.

SUBMITTED to the Chief Engineer and Secretary to Government, Public Works Department.

(Signed) ROSS THOMPSON, Captain, R.E.,
District Engineer, Presidency.

Nos. 525 & 526. ORDER THEREON, 23rd November 1875, No. 3,349.

ACCOUNT, No. 14.

ORDERED that the Packing Account be forwarded to the Home Government.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 527. From the Secretary to the Government of Fort St. George, Public Works Department, to the Under Secretary of State for India, dated 23rd November 1875, No. 3,350.

ACCOUNT, No. 15.

SIR,—I am directed by His Excellency the Governor in Council to retransmit, for submission to the Most Honorable the Secretary of State for India, the original Packing Account of Remittance, Mysore Foreign Funds Stores per S.S. *Hutton* for Madras.

No. 528. Read the following letter from Captain L. CONWAY-GORDON, R.E., Controller of Public Works Accounts, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 16th November 1875, No. 140 W. :—

I HAVE the honor to acknowledge the receipt of the Proceedings of Government detailed in the margin, communicating certain sanctions and in every case forwarding along with the Proceedings of Government a copy of the abstract estimate of the work for which sanction is conveyed.

G.O.,	No.	3,014, of 27th	October	1875.
,,	,,	3,051, of 28th	,,	,,
,,	,,	2,997, of 27th	,,	,,
,,	,,	2,844, of 2nd	,,	,,
,,	,,	33, of 7th	,,	,,
,,	,,	3,024, of 27th	,,	,,
,,	,,	3,059, of 28th	,,	,,
,,	,,	43, of 8th	,,	,,

2. As in no case do these works amount to Rupees 2,500* in value, the present limit within which works are not required to be kept by sub-heads, I have the honor to inquire the purpose for which these abstract estimates have been sent to me. In ordinary course I might assume that they are some special works which Government desire should be separately treated, and the accounts of which are to be exceptionally exhibited under sub-heads.

* A proposal is now before Government to increase this limit to Rupees 10,000.

3. But so many of these exceptional works have lately been received, and for some of them, for instance the estimate for putting an iron roof over a boiler, there would appear to be so little *primâ facie* cause for treating the work exceptionally that I hesitate to ask the executive officers concerned to go to the extra trouble of reporting the expenditure on these works by sub-heads before inquiring from Government whether the submission of these abstract estimates to my office is not due to some unfortunate mistake.

4. I need hardly point out that the orders of Government at present require that the accounts are to be kept by sub-heads only for works exceeding Rupees 2,500 in value, and for these I obviously require abstract estimates. For works less than Rupees 2,500 I do not require such estimates, and as the submission of them to my office is not only useless, but causes some unnecessary labor in the range offices where these estimates are prepared, I would suggest that their submission to this office be discontinued, except in cases where for special reasons Government may require the accounts of a work costing less than Rupees 2,500 to be kept by sub-heads.

5. I further note that the whole of these estimates, though apparently sanctioned by Government, bear no enfacement showing that they have been so sanctioned, or by whom, or when.

No. 529. ORDER THEREON, 23rd November 1875, No. 3,351.

ACCOUNT, No. 15-A.

THE Controller's requirements in respect to estimates have been misapprehended, the Orders of the 28th June and 8th September 1875, Nos. 1,786 and 2,573, having directed that abstracts of *all* estimates sanctioned by Government should be furnished to that officer; while it appears that only estimates for works costing Rupees 2,500 and above are wanted. There is no ground for the assumption in paragraph 2 of the Controller's letter that because estimates for works below this limit accompanied the orders sanctioning the works, a material alteration on the system of audit was intended by Government.

2. It has never been the practice to enface estimates in the manner referred to in paragraph 5. This matter will however be attended to when the recent proposals of the Controller in regard to recording the sanctions of estimates shall have been carried into effect.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following papers :—

No. 530. Petition from N. Ramasawmy Pillay, late Overseer, Salem District, dated 27th October 1875.

No. 530-A. From the District Engineer, Salem, dated 12th November 1875, No. 98.

No. 531. ORDER THEREON, 23rd November 1875, No. 3,352.

ESTABLISHMENT, No. 33.

HIS EXCELLENCY the Governor in Council has no objection to the employment of Ramasawmy Pillay in an office. His re-employment in the executive branch of the department, however, will depend on his future conduct.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 532. Read the following endorsement of the Officiating Chief Secretary to Government, Judicial Department, dated 17th November 1875, No. 672 :—

From R. J. MELVILLE, Esq., Acting Collector and Magistrate of the Chingleput District, to the Hon. D. F. CARMICHAEL, Officiating Chief Secretary to Government, Fort St. George, dated Saidapett, 16th November 1875, No. 132.

REFERRING to G.O., dated 22nd October 1874, No. 1,967, I have the honor to request that Government will be good enough to allot funds for carrying out the improvements and alterations suggested in Mr. Barlow's No. 490, printed in the above Proceedings, for the Deputy Tahsildar's Office at Poonamallee, as it appears that no funds have been allotted for the purpose. The Deputy Tahsildar lately informed me that the want of a proper record-room is very much felt. I communicated with the Superintending Engineer on the subject. He prepared and sent me an estimate, amounting to Rupees 160, which I countersigned and returned. He now states that he has no funds, the amount at his disposal having been already exhausted, and has requested me to obtain a special allotment.

TRANSFERRED to the Public Works Department with reference to paragraph 2 of G.O., dated 22nd October 1874.

(Signed) D. F. CARMICHAEL,
Officiating Chief Secretary.

No. 533. ORDER THEREON, 23rd November 1875, No. 3,353.

CIVIL WORKS, No. 34.

THE Superintending Engineer, Chingleput, is authorized to carry out the work alluded to by the Collector in anticipation of an allotment from savings later in the year.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following papers :—

No. 534. Endorsement of the Secretary to Government, Military Department, dated Ootacamund, 30th August 1875, No. 4,191.

From Major-General A. BORTON, Officer Commanding the Mysore Division, to Brigadier-General A. HOWLETT, Quartermaster-General, dated Bangalore, 13th August 1875, No. 281.

No. 248 of 21st ultimo, forwarding plan and estimate for school-houses for Native Regiments.

WITH reference to my letter as per margin, I have the honor to forward revised plan and estimate for school-houses and furniture for four Native Infantry Regiments prepared agreeably to the standard plan which accompanied O.G., No. 2,087, of 23rd July 1875.

No. $\frac{316}{5,206}$.

FORWARDED to Government for consideration in the Department of Public Works, as the estimate exceeds the amount sanctioned in O.G., No. 2,087, of 23rd July last, for the new school-room and furniture for Native Corps.

(By order,)

OOTACAMUND, 19*th August* 1875.

(Signed) A. HOWLETT, Brigadier-General,
Quartermaster-General.

TRANSFERRED to the Public Works Department.

(Signed) A. C. SILVER, Colonel,
Secy. to Government, Mily. D.

No. 534-A. From Major H. M. VIBART, R.E., District Engineer, Bangalore, to Major A. DEC. SCOTT, R.E., Under Secretary to Government, Public Works Department, dated Bangalore, 11th September 1875, No. 98.

WITH reference to your memorandum, dated 8th September 1875, No. 488, I have the honor to forward, herewith, a revised estimate, amounting to Rupees 1,200, for constructing school-houses for Native Infantry Regiments, and to state that, in bringing the amount of estimate to the standard scale, the rates only have been decreased, and the furniture will be made of junglewood in place of teak. Bamboo reepers have been allowed for; I think, however, that bamboo reepers are unsuitable at Bangalore

for permanent buildings, as white-ants are found in large numbers here and destroy the bamboos. This has frequently been observed when dismantling old buildings.

No. 534-B. From the same officer, dated Bangalore, 12th November 1875, No. 134.

WITH reference to your memorandum, No. 673, dated 9th instant, I have the honor to state that the rates allowed in the estimate for the school-houses are very low and they cannot, therefore, be reduced. If junglewood reepers are used instead of bamboo reepers, the amount of the estimate will be increased by Rupees 68 for each school-house. In the estimate nothing has been allowed for superintendence and sundries, and it is therefore very problematical if the work could really be carried out for Rupees 1,200 inclusive of furniture.

2. The area covered is 1,512 square feet, and the cost is put down at only 10 Annas 8 Pies a square foot, which can only be considered remarkably cheap.

No. 535. ORDER THEREON, 23rd November 1875, No. 3,354.

MILITARY WORKS, No. 16-B.

TRANSFERRED to the Military Department.

2. The details of the estimate for school-houses for Native Infantry at Bangalore, as now revised by the District Engineer, are approved in the Public Works Department; it being suggested in addition that the bamboo reepers might be coated with a mixture of tar and arsenic to protect them from the attacks of white-ants.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following papers :—

No. 536. From Major H. M. VIBART, R.E., District Engineer, Bangalore, to Major-General G. W. WALKER, R.E., Chief Engineer, Public Works Department, dated Bangalore, 25th September 1875, No. 105.

I HAVE the honor to forward herewith, for sanction, a comparative statement, with the information required in Circular, No. 58, dated 5th June 1875, for constructing Apothecary's quarters for St. John's Hill Barracks at this station, from which it will be seen that the original estimate has been exceeded by Rupees 1,096.

2. The reasons for the excess are given in the comparative statement.

The amount of the general estimate is Rupees 4,400, sanctioned by G.O., No. 3,093, dated 23rd September 1869.

The amount expended up to the end of the previous year or to the end of the last year in which expenditure was incurred was ...	Rs.	3,001	7	0
The allotment of the current year is	„	1,400	0	0
The expenditure of the current year up to date is	„	2,494	9	0

No. 536-A. From the same officer, dated Bangalore, 25th September 1875, No. 106.

I HAVE the honor to forward herewith, for sanction, a comparative statement, with the information required in Circular, No. 58, dated 5th June 1875, for constructing

quarters for two Commissariat Staff Serjeants at this station, from which it will be seen that the original estimate has been exceeded by Rupees 541-2-5.

2. The reasons for the excess are given in the comparative statement.

The amount of the general estimate is Rupees 8,400, sanctioned by G.O., No. 1,662, dated 19th June 1874.

The amount expended up to the end of previous year or to the end of the last year in which expenditure was incurred was ...	Rs.	8,104	5	7
The allotment of the current year is	,,	.....		
The expenditure of the current year up to date is	,,	836	12	10

No. 537. ORDER THEREON, 23rd November 1875, No. 3,355.

MILITARY WORKS, No. 17.

WITH his letters above recorded the District Engineer, Bangalore, submits revised estimates for two Military buildings at that station, *viz.*, quarters for an Apothecary at St. John's Hill Barracks and quarters for two Commissariat Staff Serjeants at the old Infantry Barracks.

2. The original estimate for the former amounted to Rupees 4,400, and was sanctioned in G.O., No. 3,093, of the 22nd September 1869. The estimate now forwarded is for Rupees 5,496, exhibiting an excess of Rupees 1,096. As regards the Staff Serjeants' quarters, the first estimate amounted to Rupees 7,000, and was sanctioned in G.O., No. 3,460, dated the 27th October 1869. The site was subsequently altered and a revised estimate was forwarded amounting to Rupees 8,400, and sanctioned in G.O., No. 1,662, dated 19th June 1874. The present estimate is Rupees 8,941, showing an excess of Rupees 541.

3. In both buildings the main portion of the additional expenditure has been caused by the higher rates paid for brickwork. As compared with the rates entered in 1869 for the Apothecary's quarters, the increase is about 45 per cent.; and since January 1874, when the sanctioned estimate for the Staff Serjeants' quarters was brought forward, the increase in rate has been 27 per cent. If the new rates are to be applied to all buildings of this class in process of construction, other excesses are apparently foreshadowed. The District Engineer will at once report the works on which they may be anticipated. In the cases now under notice, the submission of the revised estimates has been most unnecessarily delayed, since the District Engineer must have been aware long ago that the sanctioned estimates would be exceeded. Revised estimates should be submitted for all buildings as soon as it becomes manifest that they are necessary.

4. The present estimates are sanctioned, and the amount required, Rupees 1,931, will be provided from the sums held at the disposal of Government under G.O., No. 2,925,* dated 13th October, and G.O., No. 3,347,† dated 23rd November 1875.

	RS.
* From item No. 36	1,700
† From grant for Minor New Works, Trichinopoly district	231
Total ...	1,931

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 538. Read the following endorsement of the Controller of Public Works Accounts :—

MEMORANDUM.

THE undersigned find themselves unable to proceed further with the work entrusted to them under G. O., No. 2,827, dated 30th September 1875, until some decision is come to with regard to the form which the revised Public Works Code for this Presidency is to assume.

2. They find that the matter to be dealt with may be roughly divided into four classes :—

(*a.*)—Orders or principles contained in the Government of India Public Works Code which are at present binding on all Local Governments, and which cannot be altered without reference to the Government of India.

(*b.*)—Instructions contained in the Government of India Public Works Code, which although not absolutely binding on Madras, agree generally with the Madras orders and practice on the same subjects.

(*c.*)—Instructions contained in the Government of India Public Works Code, which are not *at present* applicable to Madras, but which could be made applicable by some change either trivial or important being introduced in the Madras practice or organization.

(*d.*)—Madras orders, which although binding in this Presidency are obviously not suitable for introduction into the revised edition of the Government of India Public Works Code, which is intended for use in other Provinces.

The question now placed before Government is, how can so much of this matter as is eventually approved of as applicable to Madras be arranged so as to secure in the Madras Public Works Code, when printed and published, the greatest assimilation with the Code of the Government of India. The issue is a very important one, as one of the principal points to be secured is the future easy incorporation in the Madras Public Works Code of all the Standing Orders issued from time to time by the Government of India in the Public Works Department.

There appear to us to be no less than four different ways in which this matter can be dealt with—

1st.—To accept the Public Works Code in its entirety, and to gradually carry out the changes in the Madras organization which the acceptance of the Government of India Code may entail. The Code would then consist of A, B and C to the exclusion of D. This, however, is not in accordance with the Proceedings of Government above quoted, and as not within our instructions we do not think it necessary to discuss it.

2nd.—To print a Madras Public Works Code, containing A, B and D, entirely separate from the Government of India Code, with which it would agree only so far as containing a certain number of orders (A and B) also contained in the Government of India Code. The arrangement and paragraphing being entirely different, the effect of taking this course would, we

fear, be rather to stereotype existing differences than to gradually assimilate practice. The Standing Orders issued by the Government of India from time to time, which are drafted with reference to their own Code, would not fit exactly into the Madras Code, and it would always require a careful analysis of the two books, side by side, before any one could tell exactly what were the differences of system in the various Provinces. A certain amount of friction could hardly be avoided when officers, and more especially Account Officers, are transferred to Madras.

3rd.—After settling what clauses of the revised Government of India Public Works Code are applicable to Madras, to ask the Government of India in printing their Code to mark all the clauses *not* applicable to Madras with a foot-note, or by a difference of type or in some other suitable way, and to publish their Code as applicable to Madras with the exceptions noted. Thus far there would be agreement, the differences would always be patent to any one opening the Public Works Code; and in issuing a Standing Order the Government of India would make it applicable to Madras if the Standing Order affected a paragraph applicable to Madras, and *vice versâ.* The Public Works Code would then be very similar to the Regulations of the Railway Clearing House, in which certain paragraphs are marked as not applicable to certain specified Railways. The general Public Works Code as read in Madras would contain all A and B, and would have to be supplemented by another small volume containing D, *i.e.*, all orders obtaining in Madras on subjects treated of in the General Code in the order C applicable to other Provinces, but not to Madras.

4th.—This last is merely a modification of No. 3. It is to select those orders and principles in the Public Works Code as are already binding on Madras, *i.e.*, (A), and which the Local Government has already no power of altering, and to ask the Government of India in printing their Code to distinguish such orders as applicable to Madras. Let these be bound up in a small volume, which would define the relations of the Madras Government to the Government of India.

Let the remaining orders B and D, which the Local Government have the power of modifying, be bound up in another volume, which would define the relations between the Madras Government and its own subordinates. The first would contain only A, and to this the Standing Orders issued by the Government of India would apply, the second would contain B and D, and would be modified by any Standing Orders which the Local Government might issue.

This is the plan which appears to us to be most logical, and on the whole to be the best. It would at any rate define exactly the relations between the Government of India and Local Governments, and this alone would be an advantage. It would further prevent the Code furnished to the general staff from being encumbered with a number of orders not necessary to them, however necessary to Government.

In recommending this course for adoption of Government, we find ourselves in accord with the Committee on Accounts, *vide* paragraph 105 of their Report.

We would beg a very speedy decision being arrived at on this question. The proof sheets of the revised Code of the Government of India were received here early in September, and it is not probable the Government of India will wait much longer before printing them off. If therefore either of the 3rd or 4th courses proposed are accepted by this Government, it will be advisable to communicate with the Government of India by telegraph.

(Signed) L. CONWAY-GORDON, Captain, R.E.,
Controller of Public Works Accounts.

MADRAS,
16*th November* 1875.

(„) A. DEC. SCOTT, Major, R.E.,
Under Secretary to Government, P.W.D.

FORWARDED to the Secretary for the decision of Government.

(Signed) L. CONWAY-GORDON, Captain, R.E.,
Controller of Public Works Accounts.

No. 539. ORDER THEREON, 23rd November 1875, No. 3,356.

ACCOUNT, No. 16.

THE Government are earnestly desirous of expediting the compilation and final adoption of a complete and well considered Code of Regulations for the Public Works Department of this Presidency. The proposals of the Committee convened under G.O., No. 1,769, dated 24th June, although they commend themselves generally for adoption involve some points of importance concerning which the views of the Officers at the Head of the Department should be obtained, weighed, and, if necessary, discussed. Moreover, seeing that the Committee has omitted to take under consideration that portion of the 1st Chapter of the Government of India Code which relates to the salaries and duties, the appointments, promotions, transfers, and strength of the Accounts Branch, and that the rules therein contained have as regards the inferior officers not been hitherto applicable to this Presidency, it is obvious that even as regards the accounts portion of the Code there are a number of points concerning which no decision has been come to and no proposals have been made to the Government.

2. In their Order of the 30th September, No. 2,827, the Government associated the Under Secretary in this Department and the Controller of Public Works Accounts for the purpose of inserting the necessary emendations in the Government of India Code, which would apparently render it suitable for adoption as the Code of this Presidency, and directed that thereafter the amended Code should be referred to a selected number of the officers of the department for discussion and final completion. But it is probable that this course would occasion a delay in the submission of the proposed Code to the Government of India, which His Excellency in Council is determined to avoid.

3. In supersession therefore of all previous orders on this subject, the Government direct that a Committee shall assemble under the presidency of the Honorable

R. S. Ellis, C.B., Member of Council, consisting of the Secretary, the Joint Secretary, and the Under Secretary to Government in the Public Works Department, and the Controller of Public Works Accounts, that the Committee shall sit twice each week, and that all questions relating to the proposals of the Committee on Accounts and the compilation of the Code in its entirety shall be then consecutively discussed and definitively settled.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following :—

No. 540. From the Director of Public Instruction, through the Educational Department, dated 11th November 1875, No. 2,537.

No. 541. ORDER THEREON, 23rd November 1875, No. 3,357.

ACCOUNT, No. 16-A.

THE District Engineer, Nilgiris, having in his letter, No. 239, of 6th August, accepted the terms offered in letter from the Secretary of the Lawrence Asylum, No. 652, of 15th July, repeated in his No. 692 of 30th July, and having given an order for the sawing and carting of a certain quantity of timber, will carry out that agreement without demur, his letter No. 261 of 16th August notwithstanding. After completion of the above contract, Captain Morant will be at liberty to make other arrangements.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 542. Read the following letter from JAMES MAY, Esq., Superintendent, Madras Harbour Works, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 22nd November 1875, No. 29 G. :—

I HAVE the honor to annex an extract from Mr. Parkes' letter to my address, dated London, 15th ultimo :—

" Mr. Beardmore, your Chief Assistant, has fixed to start by the mail which leaves London, *viâ* Brindisi, on 5th November, and he will go *viâ* Bombay, as that mail does not go to Madras by sea, so you may expect him about 27th November. I enclose you a copy of the letter by which he is appointed, and which will explain his position in regard to you. I hope you will find him useful, and I think you can treat him as a confidant. You will understand that his pay commences from 28th October, the day

of departure of the Southampton steamer, and he himself pays the difference of cost *viâ* Brindisi."

Mr. Parkes writes to me again as follows, under date 29th ultimo, this letter having been received last evening:—

"Beardmore leaves next week, having entered on his pay yesterday (28th October), the day of departure of the steamer from Southampton. He pays his own expenses to Brindisi, which are met by his week's salary, but he will charge on arrival at Madras his further *disbursements viâ* Bombay."

A copy of Mr. Parkes' letter of 9th ultimo to Mr. Beardmore, which is referred to in the first of the prefixed extracts, is enclosed.

From W. PARKES, Esq., to NATHANIEL ST. BERNARD BEARDMORE, Esq., A.I.C.E., dated 23 Abingdon Street, 9th October 1875.

I HAVE now received authority from the Secretary of State for India to engage your services as first Assistant Engineer on the Madras Harbour Works, at a salary of 500 Rupees per month.

2. As already arranged between us, the engagement is to be for three years certain, to commence on the day of your departure from England and to terminate on the day of the arrival at Southampton, or other English port, of the steamer by which you leave India. You will be allowed a free first-class passage out, and also one home at the expiration of your three years' engagement, on condition of your giving six months' clear notice to the Superintendent of your intention to leave.

3. In the event of any unforeseen circumstance rendering it desirable for your engagement to be brought to a close at an earlier date, the terms as to salary and passage home shall be settled in such way as the Secretary of State shall direct. Should you wish to proceed elsewhere than to England on the termination of your engagement at Madras, your pay will cease at the same time as your services.

4. With regard to your position on the works, you will understand that you are to place yourself entirely under the orders of Mr. May, the Superintendent, and I hope that he will arrange your duties so as to make you familiar with every department of the work. In the event of his temporary absence, it will be your duty to take his place, unless other arrangements shall be made, as to which you will receive direct instructions from me.

5. I have only to express a hope that you will do your part to bring this important work to a successful termination.

6. Please inform me at what date it will be convenient to you to leave for India.

No. 543. ORDER THEREON, 23rd November 1875, No. 3,358.

ESTABLISHMENT, No. 34.

ORDERED to be recorded.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following papers :—

No. 544. Endorsement of the Superintending Engineer, Chingleput, dated Guindy, 24th July 1875, No. 1,588.

From Captain A. C. SMITH, R.E., Executive Engineer, Mount Range, to Colonel F. J. MOBERLY, R.E., Superintending Engineer, Chingleput, dated Mount, 20th July 1875, No. 949.

WITH reference to G.O., No. 2,802, of the 26th August 1869, and G.O., No. 2,173, of the 12th September 1872, I have the honor to request that you will forward the following petition for the favorable consideration of the Government.

2. After my seven years' service mostly in the Department Public Works, in which I attained the rank of 4th-class Executive, in this country, I reverted to Home Service and returned to England on Military duty.

3. After serving at Home for two years and nine months I returned again to this Presidency, and was appointed Supernumerary Executive Engineer, 4th grade, until such time as I was absorbed into the strength of the Department Public Works.

4. I do not know when this came about, but I was in hopes that when I was absorbed that I should take my old place, whatever it may have been, at any rate in the list of 4th Executives, instead of which apparently I still remained at the bottom, and my promotion to a higher grade has been much delayed in consequence.

5. Referring to G.O., No. 2,173, of 12th September 1872, I am not aware of the circumstances under which Captains Pennycuick and Ross Thompson lost their places, but Captains Vibart and Smalley lost theirs by over-staying their furlough for Military duty or extra sick leave at Home.

6. My case is much the same, only I have taken no furlough, but went Home on duty, and I was in hopes that on my return, when I became absorbed in the Department Public Works strength, that I would take the same place from the top of my grade that I held when I left the Presidency, and that on promotion I would revert to my old position in the same way that the above named Officers were allowed to do.

7. I may here mention that Lieutenant Awdry, who is my junior by four years in the corps, and, who so far as I know, has no claims on the Department Public Works of this Presidency, has been appointed 3rd grade Executive Engineer over my head.

8. I request therefore that the Government will take my case into favorable consideration, and, if possible, place my name more among officers of my own standing than it is at present.

9. I append a list of Officers, with dates of first appointments, in the Department Public Works.

SUBMITTED to the Secretary to Government, Public Works Department, for favorable consideration.

(Signed) F. J. MOBERLY, Colonel, R.E.,
Superintending Engineer, Chingleput.

No. 545. Endorsement of the Superintending Engineer, Chingleput, dated Guindy, 25th October 1875, No. 3,132.

From Captain A. C. SMITH, R.E., Executive Engineer No. 2 or Mount Range, to Colonel F. J. MOBERLY, R.E., Superintending Engineer, Chingleput, dated 20th October 1875, No. 2,057.

WITH reference to your No. 2,996, of 16th October, forwarding Memorandum, No. 645, by the Chief Engineer, I have the honor to state that I do not claim any position as a right.

2. I wished merely respectfully to request that my present position in the department might be considered, for although in 1870 I resigned my appointment it was only at the termination of my first tour of Indian Service that I did so.

3. Therefore, although I was placed as a supernumerary at the bottom of the 4th grade Executives, on rejoining the department I hoped when I became absorbed into the strength that I should be replaced in the same position in that grade that I held when I resigned, instead of which I still remained at the bottom of the list, and thus by my absence I lost many places.

4. I do not claim sudden promotion, I merely request to be put back in my old place, whatever it may have been in the department; thus supposing, as I believe, that I was fourth in the list of 4th Executives, I ask to be considered as having been on the date of my absorption, again placed fourth in that list.

5. I do not wish to be placed in any position which may be considered in any way unfair to others, but as it is my absence of three years will in reality lose me about six years' service in the department, or three years' *plus* the time taken in working from the bottom to near the top of the grade; had I been at the bottom of that grade when I left India I should have, as it were, been in a better position than I am now, for I would have then naturally fallen into my old place, whereas now I am many places below it.

6. Taking these facts into consideration therefore, I request that it may please the Government to place me in such a position as they may think fair and just to all concerned.

SUBMITTED to the Chief Engineer, Department Public Works, with reference to his Memorandum No. 645, dated 11th October 1875.

(Signed) F. J. MOBERLY, Colonel, R.E.,
Superintending Engineer, Chingleput.

No. 546. MINUTE BY THE HONORABLE THE GOVERNOR.

IT appears to me that the gazetting of Captain Smith has been right, and I would reject his claim.

2. I think that an important principle underlies this matter, and that the interest of a local service will be to a certain degree imperilled by admitting these Military claims.

3. Special privileges are reserved for Military Officers who fulfil certain conditions, and I would secure to them all these privileges. I would not stretch them where the conditions are unfulfilled as in the case of Captain Smith.

4. Captain Smith left the service and exchanged as it were into another in England. By Military analogy he would exchange to the bottom of his rank.

5. The change apparently did not suit him, and he desires to return to his old corps or service (whichever we may call it), and I think that General Walker has placed him where any rights he has are properly recognized—a position beyond which I hold neither the rights nor quasi-military analogies entitle him to pass. Considerations of this kind probably satisfied Captain Smith with his position for a year or more. He acquiesced in the gradation.

6. I have given this matter much anxious consideration, and hold that the interests of the local service require that the precedent Captain Smith's case would establish must be avoided.

7. The Government order in Captain Smith's case need not notice Captain Awdry's case.

2nd October 1875. (Signed) W. ROBINSON.

No. 547. Note by His Excellency the Commander-in-Chief.
(Here enter dated 20th September 1875.)

No. 548. Note by the Honorable W. HUDLESTON.
(Here enter dated 4th October 1875.)

No. 549. ORDER THEREON, 23rd November 1875, No. 3,359.

ESTABLISHMENT, No. 36.

ORDERED that a reference to the Government of India be made on the general subject of the posting of Engineer Officers of the Imperial List to the Department Public Works both on their originally joining it and returning to it for a second tour of duty.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 550. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Government of India, P.W.D., dated 23rd November 1875, No. 3,360.

ESTABLISHMENT, No. 36.

SIR,—I am directed to solicit a general ruling as to the position in the Public Works Department to be assigned to Royal Engineer Officers of the Imperial List; as well on their first appointment, as on their return for a second tour of duty.

2. A young Royal Engineer Officer after obtaining his commission at Woolwich usually passes two years at Chatham, and comes out to India in the third year after leaving College. And in this Presidency it is a standing rule that he is not available for the Public Works Department till he shall have spent one year with the Sappers and Miners; in the course of which he is very likely to have obtained command of a Company, and to be drawing at least Rupees 50 a-month more than an Assistant Engineer, 2nd grade. And it will happen that he may join the Public Works Department at the same time with a young Civil Engineer who has just arrived from Cooper's Hill, or a Student lately passed out of the local Civil Engineering College

(perhaps a Native or East Indian). Looking to the relative standing of the three classes of men, and the nature of their College education and subsequent training, it would seem fair, I am directed to observe, that their first postings should be to the 1st, 2nd, and 3rd grades of Assistant Engineer rank respectively.

3. It would appear to be an anomaly that the first period of service of a Royal Engineer Officer should be only for seven years, one year short of the time that would entitle him to furlough for two years, and to retain a lien on his appointment. It might be as well, I am instructed to say, that a representation should be made to the Home Authorities as to the propriety of assimilating the lengths of the tours of service of Royal Engineer Officers to those of the periods entitling to furlough under the Rules of 1868, *viz.*, periods of six years, entitling to one year's furlough, succeeding a first period of eight years, entitling to two years' furlough. As matters now stand, it is considered uncertain whether Captain A. C. Smith, R.E., (whose case has caused this general reference) has a lien on his appointment in the Public Works Department of this Presidency in consequence of having left it in November 1870, on completing a seven years' tour of service in India, and not returning to it till November 1873. Captain Smith's plea is that he should be reinstated in his old place in his old grade on the date when he ceased to be supernumerary to the establishment; and the claim is considered by this Government as one that might conveniently be acquiesced in as fair, so that it should be a precedent for the future. Captain Smith's place, in November 1870, was 4th on the list of Executive Engineers, 4th grade, but he would have gone down to the seventh place had be been present at the re-organization of 1st December 1872; and that accordingly is the place which it is proposed to assign him, as on the 1st March 1874 when he ceased to be a supernumerary.

4. Captain Smith has brought forward the posting of Lieutenant Awdry, R.E., and I am directed to ascertain the views of the Government of India as to the propriety of the considerations which led to this latter Officer being posted as an Executive Engineer, 3rd grade, on receipt of letter, No. 148, of 7th June 1875, Military Department. Lieutenant Awdry appears to have joined the Bombay Public Works Department on 14th January 1868, and to have attained the rank of Executive Engineer, 4th grade,* at the time of his appointment to be Military Secretary to the late Governor of Madras in May 1872. He ranks as an Officer of Royal Engineers on the Madras List immediately below Lieutenants Coaker and F. J. Dorward; and the fact of both those officers having attained the departmental position of Executive Engineer, 3rd grade, in September 1874, afforded a reason for bringing him on the strength of the Madras Department Public Works at the bottom of the same grade. In itself the posting seemed unobjectionable at the time; but it appears a substantial personal grievance as objected to by Captain A. C. Smith, who points out that Lieutenant Awdry, who is junior by four years in the corps of Royal Engineers, and whose position affords no superior claim to his own on the Department Public Works, has been appointed 3rd Grade Executive Engineer over his, Captain Smith's, head.

* 1st October 1871.

5. It is, however, to be observed, on the other side, that Lieutenant Awdry's service in the country was continuous, though not in the Public Works Department, while Captain Smith severed his connection with the Indian Public Works Department, but remained in strictly professional duty in Her Majesty's Army.

No. 551. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 16th November 1875, No. 626 :—

I HAVE the honor to submit, for the consideration of Government, two letters from the Agent of the South Indian Railway, giving cover to certain correspondence on the subject of the salaries drawn by the Company's Engineering staff. In that correspondence two points are brought forward; first, the establishment of uniform rates of salary among the Assistant Engineers now in the South Indian Railway Company's service, and, second, the proposed increase to the salary of the Chief Engineer.

No. 848, 11th September 1875.
No. 866, 21st ,, ,,

2. Upon the Madras Railway, the oldest line in this Presidency, there were formerly three classes of Assistant Engineers at salaries of £450, £650, and £850 per annum, respectively. These salaries were drawn in India at the contract rate of exchange of 1 shilling and 10 pence per rupee. In the year 1868 the Board of Directors sanctioned, with the approval of Government, the division of each class into two grades; the first or upper grade comprising those officers who had served for two years in the class, and whose salaries were to be proportionately increased.

Proceedings of Government, 22nd May 1868, No. 1,622.

3. Upon the Great Southern of India Railway there were also three classes of Engineers, but at salaries of £500, £700, and £900 per annum, respectively, being somewhat more than on the Madras Railway. These salaries were drawn at the contract rate of exchange of 1 shilling and 10 pence per rupee. Upon this line the classes of Engineers were never divided into grades.

4. Upon the Carnatic Railway the number of classes of Engineers was the same as on the other two lines; and the arrangements as to division into grades, and as to salaries, were the same as on the Madras Railway. The contract rate of exchange, however, being 2 shillings, instead of 1 shilling and 10 pence per rupee, the salaries drawn in India were less than on the Madras Railway.

5. The following table shows the salaries, in English and Indian currency, drawn by the Assistant Engineers in the service of the three Companies :—

Class.	Grade.	Madras Railway.		Great Southern of India Railway.		Carnatic Railway.	
		Per annum.	Per mensem.	Per annum.	Per mensem.	Per annum.	Per mensem.
		£	RS.	£	RS.	£	RS.
First	First ...	950	864	...	...	950	792
First	Second ...	850	773	900	818	850	708
Second	First ...	725	659	...	...	725	604
Second	Second ...	650	591	700	636	650	542
Third	First ...	500	455	...	...	500	417
Third	Second ...	450	409	500	455	450	375

6. The Chief Engineer has now pointed out that, since the amalgamation of the Great Southern of India and the Carnatic Railway Companies, difficulties have arisen from the fact that part of the staff receive pay calculated upon a lower scale than the pay drawn by men holding nominally the same posts and performing the same duties; and the Directors propose to remove these difficulties by adopting the salary attached to the upper grade in each class on the Madras Railway, and by paying their Engineering staff in future at the following rates in Indian currency :—

First-class Assistant Engineers,	Rupees	864	per mensem.
Second-class ,, ,,	,,	659	,, ,,
Third-class ,, ,,	,,	454	,, ,,

7. The anomaly now brought forward ought to be removed; but I cannot recommend the mode in which the Board propose to deal with it. According to their proposal, an officer, on appointment to one of the three classes of Assistant Engineers, would draw the same rate of salary that is drawn on the Madras Railway after two years' service in that class. I am of opinion that it would be well to retain the division of each class into two grades, as in force on the Madras and Carnatic Railways. The arrangement is one which has worked excellently on the Madras Railway for more than seven years. It gives every officer a claim to a slight increase of salary after two years' approved service in each class, and tends to reconcile all to the necessarily slow rate of promotion from the lower class to the higher. If the proposal of the South Indian Board were adopted as it stands, there can be no doubt that it would tend to make the Engineers in the service of the Madras Railway discontented, by placing upon a better footing those in the service of the sister Company.

8. It is therefore recommended, for the consideration of Government, that the division of the Engineering staff into classes and grades, which obtains on the Madras Railway, should be adopted on the South Indian Railway; and that the Madras Railway rates of salary, in Indian currency, should also be adopted. The accompanying memorandum shows that this measure would entail an increased monthly expenditure of Rupees 753. The salaries to be drawn would be as follow :—

First-class Assistant Engineer—			
1st grade (over two years' service in class)	Rupees	864	per mensem.
2nd grade (under do. do.)	,,	773	,, ,,
Second-class Assistant Engineer—			
1st grade (over two years' service in class)	,,	659	,, ,,
2nd grade (under do. do.)	,,	591	,, ,,
Third-class Assistant Engineer—			
1st grade (over two years' service in class)	,,	455	,, ,,
2nd grade (under do. do.)	,,	409	,, ,,

9. With regard to the salary of the Chief Engineer, the Directors express a hope that, upon reconsideration, the Government will be pleased to sanction the proposed increase, from £2,000 to £2,400 per annum. My opinion upon this point is already before Government, and I have nothing to add to the remarks contained in my letter of the 8th April 1875, No. 200.

Proceedings of Government, 27th April 1875, No. 1,170.

Memorandum showing present and proposed rates of salary drawn by Assistant Engineers, South Indian Railway.

Names.	Class.	Grade.	Date of appointment to each class.	Period of service in each class up to October 1875. Y.	M.	Present salary in Rupees per mensem.	Proposed salary in Rupees per mensem.	Increase per mensem.
				Y.	M.	RS.	RS.	RS.
Theophilus Nicholls	1st-class.	1st...	1st April 1873.	2	7	819	864	45
W. H. Spalding ...	Do. ...	1st...	Do. ,,	2	7	819	864	45
A. D. Fox	Do. ...	1st...	8th Oct. ,,	2	1	708	864	156
F. F. Smith ...	Do. ...	2nd ..	1st July 1874.	1	4	819	819*	...
Herbert Chapman ...	Do. ...	2nd...	9th Sept. 1875.	0	1	819	819*	...
Arthur Hemans ...	2nd-class.	1st...	1st April 1873.	2	7	636	659	23
J. G. Jopp	Do. ...	1st ..	Do. ,,	2	7	636	659	23
R. Cunningham ...	Do. ...	2nd ..	1st Jan. 1874.	1	10	636	636*	...
F. O. Bulmore ...	3rd-class.	1st...	15th April 1871.	4	7	416	455	39
W. Partridge ...	Do. ...	1st...	6th June 1872.	3	5	455	455	...
J. Rice	Do. ...	1st...	Do. ,,	3	5	455	455	...
J. Dredge	Do. ...	1st...	13th Jan. 1873.	2	10	455	455	...
C. J. Boustead ...	Do. ...	1st ..	Do. ,,	2	10	455	455	...
C. E. Nicholas ...	Do. ...	1st...	10th Feb. ,,	2	9	455	455	...
C. Scott	Do. ...	1st ..	24th April ,,	2	6	375	455	80
R. W. Thompson ...	Do. ...	1st...	May ,,	2	6	375	455	80
J. A. Jones ...	Do. ...	1st...	22nd ,, ,,	2	5	375	455	80
H. C. Baggallay ...	Do. ...	1st ..	Do. ,,	2	5	375	455	80
G. Anderson ...	Do. ...	2nd...	17th May 1874.	1	6	455	455*	...
A. Beeston	Do. ...	2nd...	June ,,	1	5	409	409	...
C. J. Bond ...	Do. ...	2nd ..	18th June ,,	1	4	375	409	34
A. Ellis	Do. ...	2nd ..	11th July ,,	1	4	375	409	34
C. H. Nias ...	Do. ...	2nd...	1st Aug. ,,	1	3	375	409	34
								753

* The salary now drawn, being in excess of that allowed in proposed scale, is entered in this case.

MADRAS, (Signed) J. H. M. SHAW-STEWART, Lieut.-Col., R.E.,
16th November 1875. *Consulting Engineer for Railways.*

From D. LOGAN, Esq., Acting Agent, South Indian Railway, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Trichinopoly, 11th September 1875, No. 848.

THE salaries of the Assistant Engineers on the late Great Southern of India and Carnatic Railways were, as you are aware, fixed at different rates for the same classes in the respective services; on the amalgamation of the two Companies, it was considered advisable to remove this anomalous state of matters by the adjustment of the salaries, and the subject was submitted for the consideration of the Board of Directors.

2. I have the honor to lay before you an expression of the views of the Directors, together with a report on the subject from their Consulting Engineers in London, and request that you will be good enough to obtain the sanction of Government to the following scale, which is the same as the one in force on the Madras Railway, *viz.* :—

First class Assistant Engineers, Rupees 864 per mensem.
Second class do. ,, 659 do.
Third class do. ,, 454 do.

3. With reference to the salary of the Chief Engineer, I shall be glad to learn that, on a reconsideration of the subject Government, have been good enough to accede to the request of the Directors, that during construction the higher rate of pay be allowed.

Extract of a letter from the Managing Director, to the Agent, dated London, 13th August 1875, No. 50.

Salaries of Engineering Staff.

As stated in letter No. 48, 30th July, this question was referred by the Board for report to the Consulting Engineers and myself. In the meanwhile your letter, dated 5th July, was received, intimating that while the Government of India accorded their sanction to your salary being raised to £2,500 per annum, they "are of opinion that the salary of Mr. Logan, the Chief Engineer, should not be more than £2,000 per annum." On consideration we thought it would be desirable to include in our report (dated 6th August 1875) a reference to the salary of the Chief Engineer, and to express our views that the amount which had been recommended for Mr. Logan (£2,400 per annum) is not more than adequate to his position and the responsibilities of his office.

2. The Board at their last meeting had under consideration the report in question (of which a copy is now forwarded for your information), and entirely acquiescing in the views therein expressed, they authorize you to make application to the Government for the sanction necessary to carry out the recommendation made. With regard to the salary of the Engineer in Chief, the Directors desire me to express a hope that upon this renewed and unanimous expression of opinion on their part, that the salary of Mr. Logan should be raised to £2,400 per annum, the Government of India will be pleased on a reconsideration of the matter to give their sanction accordingly. The Directors feel that in Mr. Logan the Company has secured the services of an officer upon whose ability and integrity they can entirely rely, and they are of opinion that the salary proposed is not more than commensurate with his merits, length of service, and the heavy responsibility devolving upon him in the carrying out of works of so extensive a character as those now under construction.

(True Extract.)

10th September 1875.

(Signed) D. LOGAN,
Acting Agent.

South Indian Railway Engineer's Office,
5 *Delahay Street, Westminster, 6th August* 1875.

Gentlemen,

We have given careful consideration to the question of the adjustment of the salaries of the officers connected with the Engineering Department engaged upon Construction, which has arisen in consequence of the amalgamation of the Great Southern of India and Carnatic Railway Companies, and we append to this report a nominal list of the present staff, showing the salaries at present paid, and those which we recommend for adoption.

2. With reference to the Chief Engineer we are of opinion that, having regard to Mr. Logan's length of service, to the heavy responsibility which devolves upon him during the carrying out departmentally of such extensive works, and to the considerable rise in prices which has taken place of late years, the salary should be increased during construction to Rupees 2,182 per mensem.

3. We think it will be desirable to retain three classes of Engineers on Construction, and to make the rates of pay uniform in each class.

4. Considering the temporary nature of the appointments as compared with those of the officers on the permanent staff, the late increase in prices, and the expenses to which the Engineers are put both upon joining and when they leave at the expiration of their engagement, we recommend that the scale should be the same as on the Madras Railway, *viz.* :—

First class	Rs. 864	per mensem.
Second class ...	659	,,
Third class	,, 454	,,

The total increase of pay, *viz.*, Rupees 1,424 per mensem, involved in these recommendations is

inconsiderable when compared with the magnitude of the Company's operations, but will, we are convinced tend greatly to encourage a very efficient staff of officers.

We are, &c.,
(Signed) GEORGE B. BRUCE.
(„) CHARLES DOUGLAS FOX.
(„) HENRY W. NOTMAN.

(True Copy of a Copy.)

10th September 1875. (Signed) D. LOGAN,
Acting Agent.

SOUTH INDIAN RAILWAY COMPANY.

Engineering Staff List.

Name.	Class.	Grade.	Present Salary in Rupees per mensem	Proposed Salary in Rupees.	Increase per mensem.
			RS.	RS.	RS.
David Logan	Chief Engineer ...		1,818	2,182	364
Robert White	1st-class ...	...	819	864	45
F. F. Smith	Do. ...	...	819	864	45
Theophilus Nicholls	Do. ...	...	819	864	45
W. H. Spalding	Do. ...	...	819	864	45
Herbert Chapman	Do. ...	...	819	864	45
A. D. Fox	Do. ...	2nd Grade ..	708	864	156
Arthur Hemans	2nd-class ...	...	637	659	22
J. G. Jopp	Do. ...	...	637	659	22
Robert Cunningham ...	Do. ...	...	637	659	22
Archd. J. Irvine	Do. ...	...	637	659	22
F. O. Bulmore	3rd-class ...	1st Grade ...	416	454	38
George Anderson	Do. ...	...	454	454	...
J. Dredge	Do. ...	...	454	454	...
C. E. Nicholas	Do. ...	...	454	454	...
C. J. Boustead	Do. ...	...	454	454	...
W. Partridge	Do. ...	...	454	454	...
James Rice	Do. ...	...	454	454	...
Cecil Scott	Do. ...	2nd Grade ..	375	454	79
J. A. Jones	Do. ...	...	375	454	79
C. H. Nias	Do. ...	...	375	454	79
C. J. Bond	Do. ...	...	375	454	79
H. C. Baggallay	Do. ...	...	375	454	79
Alwell Ellis	Do. ...	...	375	454	79
R. W. Thompson	Do. ...	...	375	454	79
Mr. Beeston	Do. ...	...	454	454	...
Total increase per mensem ...	...	...	...	...	1,424

From D. LOGAN, Esq., Acting Agent, South Indian Railway, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Trichinopoly, 21st September 1875, No. 866.

IN compliance with the request contained in your letter No. 632, of the 18th instant, I have the honor to forward herewith copy of the Chief Engineer's report, No. 8,242, dated 19th June 1875.

From D. LOGAN, Esq., Chief Engineer, to W. S. BETTS, Esq., Agent, South Indian Railway, dated Trichinopoly, 19th June 1875, No. 8,242.

SINCE the amalgamation of the Great Southern of India and Carnatic Railway Companies in July last, the members of the Assistant Engineer's staff of the amalgamated South Indian Railway Company have been paid on different systems and rates. The system and rates obtaining on the Great Southern of India Railway differed from those on the Carnatic Railway; nothing has yet been done to establish uniformity in this matter, and the anomaly is presented of one part of the Engineer staff that lately belonging to the Carnatic Railway being paid smaller salaries than are received class for class and duty for duty by men lately on the Great Southern of India Railway staff.

2. I do not think that this is a satisfactory state for the Engineer Department to remain in, and I venture to propose that one uniform system of classes, grades, and rates of pay be established, and that that shall be the one now in force on the Madras Railway. The following comparative statement shows the classes, grades, and rates of salary in force on the Railways in the Madras Presidency:—

Class.	Grade.	Madras Railway.		South Indian Railway.			
				Great Southern of India.		Carnatic.	
		At 1s. 10d. per Rupee.		At 1s. 10d. per Rupee.		At 2s. per Rupee.	
		£	RS.	£	RS.	£	RS.
First	First ...	950	864	900	819	950	792
Do.	Second ...	850	773	...	...	850	708
Second	First ...	725	659	700	637	725	604
Do.	Second ...	650	591	...	...	650	541
Third	First ...	500	454	500	454	500	416
Do.	Second ...	450	409	...	...	450	375
Fourth	...	351	318	...	...	...	...

3. From this it will be seen that the Madras Railway and the late Carnatic Railway Company's classes and grades are the same as far as they go, *viz.*, three classes of Engineers, first, second, and third, with two grades, first and second, in each class. The annual rate of salary in pounds sterling for each grade and class is also the same, but the Madras Railway men receive their pay in India at the rate of 1*s.* 10*d.* per Rupee, whereas the Carnatic men are paid at the rate of 2*s.* in the Rupee or $8\frac{1}{3}$ per cent. less.

4. On the Great Southern of India Railway there were but three classes, first, second and third, with payment at the rate of 1*s.* 10*d.* per Rupee as on the Madras Railway. The third-class pay, £500 per annum, is the same as the first grade third-class of the Madras Railway, the second-class is £700 against £650 and £725, and first-class £900 against £850 and £950 of the same *classes* on the Madras Line.

5. The work on the South Indian Railway is not less responsible than that on the Madras Railway, and I suggest, for the consideration of the Directors, whether it is not expedient to place their Engineers on an equal footing with others in the same Presidency.

The cost of living has in many ways increased in India; many of the Engineers can only hope for employment in the service for a few years at most, because as the work of construction draws to a close the strength of the establishment has to be reduced.

6. On first coming to India a good deal of money has to be laid out by Engineers, first, in out-fit at home and then in purchasing horses, furniture, and other necessaries of life on landing. During a man's service there are contingencies such as sickness, the loss and replacing of horses

and the like to be met; and if an Engineer has to return to Europe at the end of his agreement he has to pay his own passage home.

7. If the service were a permanent one with a pension to be earned, the terms might be open to discussion, but looking at the peculiar circumstances of a Railway Company's Engineer in this country, I do not think that the scale of pay for which I now ask sanction can be considered at all too high; and I feel convinced that the members of the staff will be grateful to the Directors and the Government for a concession which will not add much to the outlay of a great Company, but which will add materially to individual prosperity and contentment.

Nos. 552 & 553. ORDER THEREON, 23rd November 1875, No. 3,361.

RAILWAY, No. 62.

HIS Excellency the Governor in Council concurs in the desirability of establishing uniformity in the grades and rates of salary of the Engineering staff on the South Indian Railway, but cannot acquiesce in the method of reform approved by the Board. As pointed out by the Consulting Engineer, the effect of the proposals brought forward would be to place the Engineers of the South Indian Railway on a better footing than those of the other Railway Company of this Presidency. His Excellency in Council is not disposed to recommend an arrangement of this kind for the sanction of the Government of India, but has no objection to propose the assimilation of the rules of the South Indian Railway to those in force on the Madras Railway, and will submit the correspondence to the Government of India with this view. The Government see no reason to modify the views already expressed in regard to the salary of the Chief Engineer.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 554. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Government of India, P.W.D., dated 23rd November 1875, No. 3,362.

RAILWAY, No. 63.

SIR,—I am directed to forward, for the consideration of the Government of India, the accompanying correspondence on the subject of uniformity in the grades and rates of salary of the Engineering staff on the South Indian Railway. The Proceedings of Government thereon will place the Right Honorable the Governor-General in Council in possession of the views of His Excellency the Governor in Council on the proposals which have been brought forward.

No. 555. Read the following letter from Captain J. PENNYCUICK, R.E., District Engineer, North Arcot, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation and Joint Secretary to Government, dated Vellore, 8th November 1875, No. 2,933:—

I HAVE the honor to report that the expenditure on the Palar Anicut, up to the end of October, has exceeded the grant for the year (Rupees 75,000) by Rupees 7,377,

and to request instructions as to whether the work should be proceeded with in anticipation of a further allotment.

2. In the absence of any special orders to stop work, it will be continued.

No. 556. ORDER THEREON, 23rd November 1875, No. 3,363.

IRRIGATION, No. 53.
Account.

THE continuance of the work of restoring the Palar Anicut, in anticipation of a further allotment of funds, is authorized, and the District Engineer will explain why his requirements were not duly reported as soon as it became evident that additional funds would be required, and he will state what amount will be needed for expenditure in the current year.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 557. Read the following Proceedings of the Madras Government in the Judicial Department, dated 19th November 1875, No. 2,435 :—

Read the following letter from the Inspector-General of Police, to the Officiating Chief Secretary to Government, dated 11th November 1875, No. 5,393.

WITH reference to your endorsement, No. 586, dated 15th October 1875, upon G.O., No. 2,828, of the 1st October 1875, Public Works Department, I have the honor to submit a letter from the Superintendent of Police, Tanjore, on the subject of the obstruction on the South Indian Railway bridge near Tanjore station.

2. It has always proved most difficult to detect cases of this kind. The iron chairs and keys lie ready to hand, and an opportunity is taken to affix them to the rails when no one is in sight.

From the Superintendent of Police, Tanjore, to the Inspector-General of Police, Madras, dated 6th November 1875, No. 193.

WITH reference to your endorsement, No. 5,140, of the 21st ultimo, on endorsement No. 586, of the 15th idem, of the Officiating Chief Secretary to Government, Madras, I have the honor to report as follows.

2. On receiving intimation of the occurrence of the 22nd July last, I at once deputed the Tanjore Town Inspector to make inquiries and to use every endeavour to trace up the party or parties who had placed the chair inverted on the rail at the spot indicated.

3. Very frequently in such cases it happens that these obstructions are placed on the line by some of the workmen themselves, on purpose to spite a particular watchman or gateman, but nothing like this could be discovered in this instance; near the spot where the chair was placed on the rails, on both sides of the line, cattle

are brought to graze, it is suspected that some of the herd boys must have placed the chair on the line through mischief; two or three men have been detailed to keep a watch, but nothing has yet turned up.

4. I think it would be very advisable if chairs, sleepers, &c., were not left lying about the embankments, when left so lying they are very handy to those either mischievously or wilfully and criminally inclined.

COMMUNICATED to the Public Works Department with reference to Government Order in that Department, dated 1st October 1875, No. 2,828.

(True Extract.)

(Signed) CHARLES MACLEAN,
Acting Under Secretary.

No. 558. ORDER THEREON, 24th November 1875, No. 3,364.

RAILWAY, No. 64.

HIS Excellency the Governor in Council considers that care should be taken by the Railway authorities that chairs, keys, &c., are properly stored under the custody of responsible servants, and not left lying about the line within reach of persons mischievously inclined.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 559. Read the following letter from Lieutenant D. McN. CAMPBELL, R.E., Executive Engineer in charge of the Kistna District, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Masulipatam, 6th November 1875, No. 88:—

1 Plan.
1 Detailed and abstract estimate for building a new cook-room and walling up the back verandah of Telegraph Office at Guntoor, amounting to Rupees 122, sanctioned by Director-General of Telegraphs, under date 14th October 1875.

THE Assistant Superintendent in charge of Nellore Sub-division having, in forwarding the accompanying estimate as per margin, requested me to obtain sanction and funds from Government and execute the work, I have the honor to solicit the favor of your placing me in funds for the work which the Assistant Superintendent wishes to see finished and completion certificate sent him soon.

2. There are no funds at my disposal under "Minor New Works" "Imperial" in this year's Budget.

No. 560. ORDER THEREON, 24th November 1875, No. 3,365.

CIVIL WORKS, No. 35.

THE plan and estimate for building a new cook-room and walling up the back verandah of the Telegraph Office at

Guntoor, amounting to Rupees 122, are sanctioned. As the grant for 1875-76 under Telegraphs is exhausted, the Director-General of Telegraphs is requested to obtain transfer from other Presidencies.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 561. Read the following letter from Colonel F. J. MOBERLY, R.E., Superintending Engineer, Chingleput, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Guindy, 9th November 1875, No. 3,343 :—

REFERRING to paragraph 2, G.O., No. 1,205, of 30th April, I have the honor to report that the Saidapett reservoir is considerably above the channel from Chembrumbaukum Tank to the farm at any point near.

2. The town is situated apparently on a peculiar spit of land, if not actually an isolated eminence, slight of course, but still only to be reached by crossing a hollow.

3. The project for its supply must be quite distinct from the farm channel for at least 4 miles, and be investigated separately.

No. 562. ORDER THEREON, 24th November 1875, No. 3,366.

IRRIGATION, No. 54.

RECORDED and communicated to the Revenue Department. The Superintending Engineer will take an early opportunity of deciding how a supply of water to Saidapett can best be obtained.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 563. Read the following endorsement of the Consulting Engineer for Railways, dated Madras, 19th November 1875, No. 630 :—

From R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Madras, 15th November 1875, No. 1,139.

I HAVE the honor to enclose for your information an extract, paragraph 10, from a letter from the Board of Directors, No. 559, dated London, the 8th of October 1875.

Extract from a letter from the Secretary, Madras Railway Company, dated London, the 8th October 1875, *No.* 559.

Incidence of the cost of machinery of less value than Rupees 1,000.
From Sir Louis Mallet to J. Byrne, Esq., dated 31st August 1875.
J. Byrne in reply, No. 3,127, dated 17th September 1875.

PARA. 10. I am directed to forward, for your information and guidance, copy of a correspondence which has passed between the Secretary of State and the Board relative to the incidence of the cost of machinery of less value than Rupees 1,000. You will observe

that the Government of India propose that all machinery required for purposes of original equipment on Guaranteed Railways shall be charged to Capital; but that after some specified interval, minor additions of machinery costing less than Rupees 1,000 shall, like corresponding engineering works, be charged to Revenue. In expressing their readiness to comply with the proposal in question, the Board stated that they concurred in the recommendation of the Government of India that the items in question should be kept distinct from minor works of engineering chargeable to Revenue, and that a new rule in respect of minor works of machinery should be made. They added that, in their opinion, a half-yearly expenditure on this account, not exceeding Rupees 5,000, would probably be sufficient for the purpose, after a lapse of two years from the date on which the locomotive shops are ready to receive their original equipment of machinery.

(True Extract.)

(Signed) R. B. ELWIN,
Agent and Manager.

From Sir LOUIS MALLET, to J. BYRNE, Esq., dated India Office, 31st August 1875.

I AM directed by the Marquis of Salisbury to invite the attention of the Directors of the Railway Company to the accompanying copies of a despatch and enclosures from the Government of India, relative to the incidence of the cost of machinery of less value than Rupees 1,000.

2. It will be observed that the Government propose that all machinery required for purposes of original equipment on Guaranteed Railways shall be charged to Capital; but that, after some specified interval, minor additions of machinery costing less than Rupees 1,000 shall, like corresponding engineering works, be charged to Revenue, and that two modes of giving effect to this principle are suggested.

3. Any change in the direction indicated will, however, as the Government of India point out, require, in the case of each Railway, the formal consent of the Board of Directors, and I am therefore to express Lord Salisbury's hope that the principle recommended by Government will be acquiesced in, and that the Board of the Railway will state the additional sum to be charged to Revenue, which they may consider suitable for the purpose.

Despatch from the Government of India, Public Works Department (Railway), to the Most Honorable the MARQUIS of SALISBURY, Secretary of State for India, dated Simla, 30th June 1875, No. 90 R.

REFERRING to your Lordship's despatch, No. 70, Railway, dated the 14th May 1874, on the subject of the limit within which minor works may become chargeable to Revenue, we have the honor to state that a question has arisen in connexion with the Great Indian Peninsula Railway, namely, whether machinery costing less than Rupees 1,000 should not, under these orders, be issued on Revenue Account, although not required to replace what has become worn out.

2. From the enclosed papers, it will be seen that the Government of Bombay have ruled that machinery required for the original equipment of locomotive workshops should be charged to Capital, whether the cost of the individual machines is in excess of Rupees 1,000 or not; but they think that some definite period should be assigned, such as about two years from the date on which the new shops are ready to receive the machinery, after which minor additions costing less than Rupees 1,000 should, like minor engineering works, be charged to Revenue.

3. Although we consider this resolution to be right in principle, we do not think that it can be carried into effect without the formal consent of the Railway Companies and your Lordship's concurrence. In the issue of plant of small value, such as the machines referred to in paragraph 3 of the Resolution of the Bombay Government, one of two plans might be

adopted. Either such items of machinery might be considered as minor engineering works, and treated accordingly under the rule for minor works of engineering chargeable to Revenue; or they might be kept distinct as minor works of machinery, a new rule similar to that in respect of minor works of engineering being made. In the former case, the half-yearly expenditure on minor works charged to Revenue would remain, as at present, limited to Rupees 5,000. In the latter case, an additional sum would have to be fixed for the half-yearly expenditure on minor works of machinery. We would recommend the latter, and request your Lordship's orders accordingly.

From Colonel M. K. KENNEDY, R.E., Secretary to the Government of Bombay in the Public Works Department, to the Secretary to the Government of India (Railway Department), dated Bombay Castle, 28th April 1875, No. 479.

I AM directed to submit, for the consideration and orders of the Government of India, copy of a memorandum by the Consulting Engineer for Railways, No. 1,420, and the resolution passed thereon by this Government, No. 478 of 28th April 1875.

Read the following :—

GREAT INDIAN PENINSULA RAILWAY.

RAILWAYS SANCTIONS.

Issue of Machinery from Stores on Capital Account.

Extract from the Proceedings of the Bombay Government in the Railway Department, dated 28th April 1875, No. 478.

No. 1,420.

MEMORANDUM.

SUBMITS, for the consideration of Government, correspondence as per margin with the Agent, Great Indian Peninsula Railway Company, relating to the issue of certain machinery from stores on Capital Account.

Letters from the Agent, Nos. 10,095 of 1874, 25 of 1875, and 3,175 of 1875.
Letters from Consulting Engineer for Railways, Nos. 4,280 of 1874 and 183 of 1875.

2. The Agent states that there is a saving of Rupees 8,558 on sanction No. 124 R., given under Government Resolution No. 897 of 1874, in consequence of there only being one 6-feet wheel lathe in store, and requests sanction to draw out the following machinery instead :—

—	English.	Indian.	Total.
1 Mortising Machine ...	2,065	500	2,565
1 Vertical Boring do....	1,150	375	1,525
1 Band Saw ...	1,011	300	1,311
1 Circular Saw Bench	550	195	745
1 Paint Mixing Machine ...	384	100	484
1 Tin-Smith's Boring Machine	44	10	54
1 Do. Bending do.	24	10	34
1 Do. Folding do.	31	10	41
Total ...	5,259	1,500	6,759

3. The question has arisen whether machinery costing less than Rupees 1,000 should, under the recent ruling of the Government of India, be issued on Revenue Account, although not required

to replace what has become worn out. The machines now applied for have been lying many years in stock, and the sooner they are used the better. The issue of the first three, which are chargeable to Capital, has, therefore, been sanctioned on that account. The orders of Government are solicited as to whether the other machines should be issued against Capital or Revenue. Up to the present time, no machinery has been issued on Revenue Account. Until the locomotive shops at Parel and up-country depôts are fully equipped, a considerable further expenditure on Capital Account must be incurred. But, considering the time the shops have been in existence, it would appear right that some rule should be laid down with regard to the replacement of machinery and the incidence of cost.

4. New machinery may be indented for of such an improved pattern as to preclude its being classed as a simple renewal of the old, and yet practically it will take the place of the old, which will fall into disuse. It would be useful to know what is the ruling on this subject on the other Guaranteed Railways in India.

(Signed) H. F. HANCOCK, Lieut.-Colonel, R.E.,
Consulting Engineer for Railways, Bombay.

17th April 1875.

RESOLUTION.—In the opinion of Government, machinery required for the original equipment of locomotive workshops is legitimately chargeable to Capital, whether the cost of the individual machines is in excess of Rupees 1,000 or not; but some definite period should be assigned for the original equipment. This may be fixed at two years from the date on which the new shops are ready to receive the machinery, after which minor additions costing less than Rupees 1,000 should, like minor engineering works, be charged to Revenue.

2. There may be some difficulty in dealing with certain cases under this rule on the Great Indian Peninsula Railway, and these should be referred to Government for orders, but when one machine is merely substituted for another of an older type, the cost of the machine replaced will be chargeable to Revenue, and it will be the province of the Consulting Engineer to see that the spirit of the rules laid down in Sir Charles Wood's despatch, No. 17 of 1864, is not infringed when submitting for sanction the estimates of the Locomotive Superintendent for equipping the new workshops, and transferring thither the machinery now in use at Byculla.

3. The five articles costing less than Rupees 1,000 which the Locomotive Superintendent wishes to take out of store at once for use at Byculla, should be charged to Revenue.

4. A copy of the Consulting Engineer's memorandum and of this resolution should be forwarded to the Government of India, with a request that they will confirm this ruling.

(Signed) M. K. KENNEDY, Colonel, R.E.,
Secretary to Government, P. W.D.

From J. BYRNE, Esq., Secretary of the Madras Railway Company, to the Under Secretary of State for India, dated London, 17th September 1875, No. 3,127.

I AM directed to acknowledge the receipt of your letter of the 31st ultimo, inviting the Board's attention to a despatch with enclosures from the Government of India relative to the incidence of the cost of machinery of less value than Rupees 1,000, from which it is observed that Government propose that all machinery required for purposes of original equipment on Guaranteed Railways shall be charged to Capital; but that, after some specified interval, minor additions of machinery costing less than Rupees 1,000 shall, like corresponding engineering works, be charged to Revenue.

2. In reply, I am instructed to inform you that the Board have pleasure in expressing their readiness to comply with the proposal in question; they concur in the recommendation of the Government of India that the items in question should be kept distinct from minor works of engineering chargeable to Revenue, and that a new rule in respect of minor works of machinery should be made. In the opinion of the Board, a half-yearly expenditure on this account not exceeding Rupees 5,000 would probably be sufficient for the purpose after a lapse of two years

from the date on which the locomotive shops are ready to receive their original equipment of machinery.

SUBMITTED for the consideration and orders of Government.

(Signed) J. H. M. SHAW-STEWART, Lt.-Col., R.E.,
Consulting Engineer for Railways.

Nos. 564 & 565. ORDER THEREON, 24th November 1875, No. 3,367.

RAILWAY, Nos. 65 & 66.

IT is observed from these papers that the Board of Directors of the Madras Railway Company acquiesce in the proposal which has been made to them to allow minor additions to machinery of less value than Rupees 1,000 to be charged to Revenue; the expenditure in any half-year on this account not to exceed Rupees 5,000, and the debits to be raised after the expiration of two years from the date on which the locomotive shops are ready to receive their original equipment of machinery.

2. The papers will be forwarded for the information of the Government of India.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 566. (DOCKET No. 3,368, dated 24th November 1875.)

COPY of the above forwarded to the Government of India.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following :—

No. 567. From the District Engineer, South Canara, dated 16th November 1875, No. 55.

No. 567-A. From the Sub-Engineer in charge of South Canara, dated 16th November 1875, No. 56.

No. 568. ORDER THEREON, 24th November 1875, No. 3,369.

ESTABLISHMENT, No. 37.

HIS Excellency the Governor in Council is pleased to sanction, under Section 15 (a) of the Acting Allowance Code, a special allowance of Rupees 100 per mensem to Mr. Sub-Engineer Fernandez while holding charge of the South Canara District, and he will accordingly be gazetted to officiate as Executive Engineer during Mr. Lawford's absence on privilege leave.

(Signed) G. W. WALKER, Major-General, R. E
Secretary to Government.

No. 569. Read the following Proceedings of the Madras Government in the Ecclesiastical Department, dated 13th November 1875, No. 270 :—

Abstract.—*Churches—England.*—Orders passed on the estimate submitted for repairing and improving the Church at Chicacole.

No. 570. Order thereon, 24th November 1875, No. 3,370.

CIVIL WORKS, No. 36.

The estimates reduced in amount to Rupees 90, Rupees 9, and Rupees 20, respectively, are sanctioned.

2. The District Engineer will provide the necessary funds from the grant at his disposal under Repairs Civil Buildings Provincial.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following :—

No. 1,355.

No. 571. Memorandum.

The following estimates have been received from the District Engineer, Cuddapah :—

			RS.
Sadiperilla Tank. Repairs ...	...	... ...	1,180
Ayacut	Acres	Government 143	707
		Inam 30	213
Average revenue ...	...	... ...	1,112
Expenditure in 1873-74 ...	...	... ...	343
Do. in 1874-75 ...	...	... ...	192

2. The area of the catchment basin is 3 square miles, and the means of disposing of surplus are a weir 60 feet long and low ground over which any quantity of flood water can, it is reported, be discharged.

3. The estimate provides for repairs to earthwork, rebuilding revetment, &c., and for gravelling the top and part of the slopes of the bund, the soil being reported to be so bad as to require this protection; nearly half the estimate is for this latter work. Apparently a width of gravelling of 11 yards is provided for, and the top width of the bund being $1\frac{1}{2}$ yards and the inner slope above the revetment about 1 yard, some $8\frac{1}{2}$ yards must be for the rear slope. The gravelling of the top and interior slope will probably be advantageous, but before a considerable sum is laid out upon coating the rear slope, an experimental length should be tried, it being by no means certain that the gravel will stand. The revetment in the example section is shown without foundation; the front toe will need support somewhat as shown in pencil. The brick dust to be used for mixing with the lime must contain a large proportion of clay, or it will do little good. Tile dust is usually better than brick dust, but the proper plan is to make good clay, the purer the better, into small cakes and to burn and then reduce it to powder.

		RS.
4. Sonipoy Naikeral Tank		310
Ayacut ... ... Acres	Government 16	116
	Inam 4	37
Average revenue		116

The area of the catchment basin is $1\frac{2}{3}$ square miles, and the maximum flood discharge in so hilly a country appears to have been somewhat under-estimated at 403 cubic feet a second. However, as the existing weir, 64 feet in length, will discharge that quantity with a depth of $1\frac{1}{2}$ feet of water passing over, probably a maximum flood will with safety be disposed of. The circumstances of the Dasabundum Tank immediately above are referred to in the report, and should be communicated to the Collector in order that measures may be taken for rendering it safe.

The work provided for is of the ordinary kind.

CAMP AT CUDDREE,
15*th November* 1875.

(Signed) JOHN MULLINS, Lt.-Col., R.E.,
Chief Engineer for Irrigation.

No. 572. ORDER THEREON, 24th November 1875, No. 3,371.

IRRIGATION, No. 55.
Account.

THE following estimates are sanctioned :—

Cuddapah District.

Sadiperilla Tank ... ... Rs. 1,180 Revenue.
Sonipoy Naikeral Tank ... ... ,, 310 ,,

2. The remarks in the foregoing note on the Sadiperilla Tank should receive attention.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 573. Read the following Proceedings of the Madras Government in the Financial Department, dated 13th November 1875, No. 2,191 :—

ABSTRACT.—*Petty Construction and Repairs.*—The assignment under this head, Public Works—Provincial, of the grant-in-aid of Rupees 2,500 for opening out tracks in the Rumpa country, not being feasible, endeavours to be made for its provision from savings in allotments for other public works.

No. 574. ORDER THEREON, 24th November 1875, No. 3,372.

CIVIL WORKS, No. 37.

RECORDED, with remark that the assignments made to the Public Works Department for Public Works in the current year have been insufficient to meet some very pressing demands, and that no savings can be reckoned on.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following :—

No. 575. *Memorandum relative to the changes required in the organization of the Public Works Department, Madras Presidency, in view to its more efficient technical administration.*

In August 1874 the undersigned submitted to the Chief Engineer a Memorandum, in which certain existing defects in the organization for the technical administration of the public works in this Presidency were alluded to. The want of a complete code, of standard specifications for all descriptions of work, of forms for estimates, returns and correspondence and of complete schedules of rates and data was pointed out.

In a draft Circular Memorandum addressed to District Engineers, (submitted for the approval of the Chief Engineer in February 1875, and issued in July 1875,) these officers were directed to furnish with their schedules next due, specifications of the work for which rates were quoted.

In their Order of the 17th March 1875, No. 748, the Government point out the necessity for the preparation in districts of standard specifications, and for enforcing the observance of the forms by subordinates. The Controller of Public Works Accounts in his letters printed in the Proceedings of Government of the 24th June and 31st July 1875, refers to the necessity for compiling standard specifications and for the preparation of a code, and in their orders thereon the Government approve of the propositions made, and depute certain officers to assist the Controller in the duty.

But in the memorandum of the undersigned of August 1874, before mentioned, the necessity for affording to the chief officers concerned with the administration of the department at head-quarters, technical assistance in the details of their duties in order to enable them to devote themselves more often to questions of general importance was also suggested, and believing that unless such assistance is given, and unless arrangements are made for enforcing attention to codes and forms the measures which have now been initiated will not produce the good effect anticipated, but will in fact prove abortive, he offers the following observations for consideration. In making them the defects of the present arrangements are recapitulated in order to the production of a connected argument, known examples of failure in projects are traced as far as may be to those defects, and the operation of the reforms advocated in preventing such failures in the future is attempted to be described.

2. It has been the duty of the writer to deal generally with the estimates sent up from the districts for all services except irrigation, and as regards these he has seen the reviews of the Chief Engineer for Irrigation. Moreover, the histories of various projects have unfolded themselves during the past few years, and it is impossible to avoid the recognition of the fact that grave defects of system exist, that projects have been and continue to be sent up for the approval of Government which contain within them the germs of failure partial or complete, and that the present organization of the department has been and is still ineffective in preventing this evil. The Note of the Chief Engineer for Irrigation on the Controller's letter already referred to contains one remark which is pregnant with meaning. He states that the specifications now written for works are in general not worth the paper they are written on, and yet it is by the specifications that the construction of works is supposed to be regulated, and it

is admitted that the manner in which a specification is written is a test of the knowledge of the work possessed by the writer.

3. It may be said that under the heads of Imperial, Provincial, and Local Fund expenditure a sum of at least one million sterling is annually at the disposal of the Department of Public Works of this Presidency. Year after year the same expenditure is gone through and work of the same nature is performed, but the formulation of the processes by which the results are produced has been very imperfectly carried out. The proper classification and division of labor connected both with executive and administrative work has therefore not been possible, and further the arrangements for the collection and application of general experience to the improvement of processes and formulæ can hardly be said to exist. To put it in other words, there is no complete code for the guidance of officers in the administration of the public works of their districts and their relations with other departments. There exists scattered throughout a mass of Government Proceedings Orders on all sorts of subjects relating to Account, Establishment, and Construction, sometimes annulling each other; but there is no arrangement for periodically abstracting, classifying them or adding them to a code and placing them in a handy form in the possession of officers and subordinates. There is no book of standard specifications defining the nature of materials to be used, the nature and mode of execution of all varieties of work. The schedules of rates in districts are in the highest degree incomplete, the data on which they are based uncertain or non-existent. Such data are not actively investigated, corrected from fresh information, or enlarged by observation of new work. Estimates are not framed on recognised examples. Tables, of scantlings for timber adapted to the current work of the districts, and for facilitating the calculation of earthwork have not been prepared, and the system partially adopted of issuing standard plans and drawings with estimates needs extensive development, more especially in the Irrigation branch.

The use of printed forms for estimates, returns, and correspondence has not been sufficiently recognized and enforced, although the economy in clerical labor thereby obtained would often be enormous. In short, the importance of that part of administration and management which formulates processes and regulates as well as simplifies labor by classification and division, is not sufficiently valued, and yet it is by such management alone that the profitable employment of inferior, and therefore cheaper, agency in both administrative and executive work is rendered possible.

4. Equally defective is the present organization in all pertaining to that important function of a technical department: the utilization of information derived from the results of its operations. Failures are usually traced to their true causes in the correspondence or orders recorded in the Government Proceedings. New rules or principles of construction are there often stated, but the steady and constant reflection of the experience gained, on the work of all members of the department, is not attained as it should be, by the insertion of the acquired rules, either by way of amendment or enlargement in the codes of construction, in the standard plans, specifications and estimates, in short in the formularies generally, which should be constantly in the hands of all and be constantly referred to. Finally, there is no central establishment for the systematic enforcement of well-settled principles, of economical arrangements, or of rules generally by an examination of projects, estimates and plans, based on the Standards and Codes. Yet it has been amply shown by experience that the constant pressure thereby implied

is absolutely necessary to prevent such codes, or rules in general from becoming in a great measure dead and inoperative.

5. Officers of the department ought to be called to account not so much for want of ability in comprehending their work and describing it clearly, as for not describing it in accordance with the standard specifications to which they should simply be referred; not for imperfect estimates or plans, but for estimates and plans not in accordance with those placed in their hands as examples or standards; for data or rates not in accordance with the standard schedules; for scantlings not in accordance with their tables; for reports omitting particulars required in their code; and an establishment is required which, having before it code, circular orders or addenda to code, forms of estimates, reports and schedules of rates, standard data and plans, tables of scantlings and hydraulic discharges, &c., would only have to ascertain that the documents sent up were in accordance with the above, or note deviations for the information and orders of the Chief Engineer, Deputy Chief Engineer, or other responsible head of the office. The division of the labor of examination being so carried out as to render it as mechanical as possible, and tending to create specialists for the several branches of construction.

The application of the principles of organization indicated above by no means implies interference with the legitimate functions of a Chief Engineer, or with those of the higher officers of the department. It simply relieves them of a mass of work which must be attended to, but which can be done with infinitely greater economy and certainly by a properly organized staff than by themselves, so long as that staff is under their supervision and control. It enables the Chief Engineer, for instance, to devote himself to his legitimate occupation—the study of works and projects in their general scope, and the establishment of general principles of design and construction to which his standard plans give expression. It gives him leisure to view the working of the department as a whole, and to study and initiate improvements having general effect. As Secretary to Government he would also by the arrangements proposed have more leisure for the administrative work which, while it is not independent of technical considerations, is closely connected with questions of general policy. The vesting in the same individual of the functions appertaining to the dual office of Chief Engineer and Secretary to Government is the only key to that complete grasp and effective control of a technical department, so important as that of the Public Works, which the Government should possess; but for the effective performance of these higher functions it is obviously necessary that ample assistance should be given in the carrying out of minor duties.

The aid given should however not stop here; the operation throughout the Presidency of the formularies referred to requires to be watched, they need to be amended or enlarged, and extended as experience suggests. Work is undertaken under hitherto unknown conditions: specifications require to be amended or provided; new materials are used or construction of a new class is carried out; rates and data require to be investigated and established. Failures occur, they indicate defects in design or execution which have not hitherto been provided against. Codes of construction, standard specifications, schedules of rates and standard plans must be brought into conformity with the acquired information. This labor, these duties, require a staff with somewhat higher qualifications, greater technical knowledge

than that simply employed to enforce attention to forms already adopted; but this element should be represented in a Chief Engineer's Office and be employed for the purposes mentioned, and its employment under proper management would be attended with benefits which would repay its cost a thousandfold.

There is not, so far as the writer is aware, in the office of the Chief Engineer of the department, or the Chief Engineer for Irrigation, a single representative of either section of the establishment referred to, to give aid in the details of the technical administration of the works throughout the Presidency. The personal check of these officers on estimates and projects is now necessarily required to extend from considerations involving lakhs of expenditure to those relating to the height of a wing-wall, the depth of a joist, or the iron work of a door, and an equal amount of time may be required to investigate the fitness of the one class of items as the other. It is self-evident that the mass of work thus thrown on individuals must be so great as to be utterly unmanageable.

On the other hand, the principles of organization which are advocated are only those which obtain in every successful manufactory in a civilized country. The formulation of processes and division of labor, together with the employment of agency suited to the labor, is the key to success in all such enterprises, and the Department of Public Works is no exception to the rule.

6. The creation of a central establishment, with thorough organization, for technical administration will not do away with the functions of District Engineers in examining and checking plans and estimates which they receive from Range Officers. They have already a staff in their offices for this purpose, as well as to assist them in the preparation of projects and designs; but the formulation of the process of examination proposed for the central office can be carried out with most beneficial results in the district office. The possession of standard plans and specifications, together with the other formularies and clear codes of instruction, will lighten the labors of both officers and subordinates to an incalculable degree, while the knowledge that scrutiny in the central office will be based on the same data, will compel that constant reference to the information placed in their hands which is necessary as a means of instruction.

To the work of Range Officers, and even that of Overseers and subordinates in general, the same principles can be applied and the same aid and instruction will be given by codes and standards for constructive work. The education of subordinates will proceed in the right direction; they will be initiated into correct methods, and they will acquire their first lessons in the constructive art, not as is now generally the case from the vicious practices of maistries or native workmen, but from well-written specifications, the directions in which they will have no excuse for not carrying out.

7. The adoption of the principle of working in accordance with well-considered standards and methods does not imply in any way whatever that there is to be a bigoted adherence to formularies, regardless of their application to particular cases, or that the inventiveness and ability of executive agents is to be cramped thereby. It has already been explained that the operation of all standards and codes is to be subjected to continued scrutiny, and that they are to be constantly amended or enlarged when necessary. Officers may improve on the methods adopted; they may point out defects in standard plans; and they may dispute data and rates; but it will be necessary for them to justify their proposed deviations from rule, and the accuracy of their conclusions

must be tested. Once thus established the change will be adopted as an amendment or as an optional method or increase to the recognized resources of construction. It will be incorporated in all the standard formularies, and it will thus be placed at the disposal of every officer of the department, and its adoption by them will, if needful, be enforced.

8. The working of the department in the absence of the organization described is carried on with an amount of friction and difficulty as well as waste of time and money, which is palpable to all who have anything to do with it. No doubt a large amount of good work is executed; but this is entirely due to the individual character and ability of a certain number of the officers, and in spite of the system, or rather want of system which prevails. It must be repeated that, at present, except as regards the Irrigation branch, there is absolutely no specific arrangement whatever for the proper examination of projects, designs, and estimates sent up to Government by District Engineers, or for comprehensive technical administration; and, as regards the Irrigation Department, the Chief Engineer will probably concur with the writer in the assertion that the provision is most inadequate. There is no technical staff whatever attached to that officer, and it is impossible that the duty of examination can be efficiently and economically carried out without aid, and ample aid, of this kind.

9. The evil effects of this absence of organization will be most forcibly illustrated by reference to particular and well known instances of failure in projects and buildings, and by showing how these may be traced for the most part, if not wholly, to such defects. The Madras Water-supply Project was originally estimated to cost some six and a half lakhs of Rupees. It will actually cost not less than thirteen. The returns from irrigation and the sale of water to the Madras Municipality were calculated at Rupees 92,000; they have hitherto not exceeded Rs. 29,772, and the prospect of substantial increase in revenue is small. There were evidently therefore large errors in the calculations on which the estimate of the cost of the works and the returns were based. Yet these passed unchallenged, and the errors were only revealed after operations had commenced, and the Government were committed to the execution of the project.

Every irrigation project ought to be based on an accurate survey of the ground included, accurate levels and sections, accurate statistics and observations regarding rainfall, drainage area, flood levels, cultivated and cultivable areas; accurate plans of existing works and accurate information regarding available resources in building materials and labor, and current rates for work. Failures to a greater or less extent arise from incorrect or imperfect information on such subjects, or from incorrect surveys or observations, and also from attempts to construct works in violation of natural laws or well-established principles, or, again, the executive arrangements and supervision may be faulty. The failure of the Red Hill Project is attributable to various causes belonging to all the heads indicated. In regard to those classifiable as incorrect information, it may be recalled to mind that the *regime* of the Cortelliar river, the source of supply was very imperfectly investigated: the maximum flood level was assumed at 10 feet, while it was actually 15 feet above the bed at the site of the head works. Overflow was not provided against, the works were damaged, and additional ones were required to a large extent not foreseen originally. The areas draining across the channel leading from the river were under-estimated, and the

provision for disposing of the drainage was consequently insufficient. Extra works were found necessary and further cost was incurred. The area of the land available for additional cultivation under the tanks was over-estimated and thence arose exaggerated forecasts of returns. The rates allowed for the execution of all the more expensive portions of the work were insufficient.

Of causes connected with incorrect surveys or operations of that nature, it is to be observed that a large source of unforeseen expenditure was additional earthwork in the embankments not originally provided for, owing to incorrect levels and sections of the original ground on which they were thrown up. The original designs of the masonry works were ill-calculated to withstand the strains to which all hydraulic works are exposed, and more massive and expensive constructions were necessarily substituted. The original estimate was here again falsified, and the failure of the project in a financial point of view further secured. Finally, the executive agency employed during the inception of the work did not belong to the trained staff of the department, and errors of execution were committed which were subsequently a cause of increased expenditure.

The question now to be considered is how far in this case an organized technical administration of the nature described would have prevented unprofitable expenditure. It must be premised that the Red Hill Project, as presented for sanction by the special Executive Engineer employed in its preparation, was subjected to no real professional scrutiny of an independent character before it was stamped with the approval of the Local Government, and forwarded to the Government of India. Specially deputed for this duty on account of presumed exceptional qualifications as a Civil Engineer at Home, the officer in question was placed in a quasi-independent position in reference to the superior officers of the Public Works Department more immediately in contact with him. The routine of the department placed over him as his immediate director the Superintending Engineer of the Circle or Division in which the work was situated, and in the office of that division the project should naturally have been examined. Obviously the details were not tested at all, and probably this was owing to the exceptional position occupied by the Engineer referred to, which had the pernicious effect of depriving Government of the benefit of the experience of the department, such as it was, then available. Its then existing organization placed between the framer of the project and the Government no responsible officer other than the Superintending Engineer. The Secretary to Government did not assume to exercise the functions of Chief Engineer; the appointment of Chief Engineer for Irrigation did not exist, and, extraordinary as it may appear, there was practically no check of a technical character which would expose errors on the part of the Engineer employed. But let us suppose that there had existed a central office of technical administration. This project would then have been subjected to a scrutiny based on the whole experience of the department, as epitomised in the codes, standard specifications, standard rates and data, and other formularies. It would at once have been noted that its designs for masonry works, its rates for labor and material, its channel slopes, were condemned by that experience, and the further investigation of the general arrangements by the Chief Engineer would have led to the timely exposure of other errors which have caused increased expense and aided its financial failure. It may be contended that the object in view has been attained by the appointment of a Chief Engineer for Irrigation, and no

doubt to a certain extent it has. A project and estimate of the character of the one originally brought forward for the water-supply of Madras could not now reach Government without condemnation being recorded against it; but, it is nevertheless asserted, that the present organization is defective, that the formularies and codes do not exist, and that in the absence of the subordinate technical assistance which must necessarily work by such aid, the Chief Engineer is overwhelmed with details of a petty nature which ought to be disposed of for him, and all of which he cannot possibly attend to, and which could, moreover, be got through, more certainly, more methodically, and much more economically by means of the arrangements advocated.

10. The observations which have been made in reference to the Red Hill Project apply with almost equal force to that for enlarging the Chembrumbaukum Tank. This was worked out by the same Engineer, passed in like manner without adequate scrutiny, and it was only after its execution had been commenced that a serious error in the levels was discovered and caused its modification. It was originally estimated to cost Rupees 3,55,000, and subsequently in its modified and reduced form Rupees 4,14,000. The outlay on it has been up to the present Rupees 4,51,204, and the present estimate for completion amounts to Rupees 5,24,805. The returns were estimated at Rupees 78,330. They cannot, it is now estimated, exceed Rupees 14,657, and it is tolerably certain that there can never be an adequate return for the expenditure.

As in the case of Red Hills Project the rates allowed were too low, the masonry works were inappropriate or insufficient, and the investigation was incomplete. The experience of the department was not brought to bear on it by means of an examination conducted in a methodical manner, and the result was loss of public money and discredit to irrigation projects in general.

11. If we turn to that branch of the department where expenditure other than that for irrigation is supervised or administered, it is not difficult to recall instances of abortive and wasteful expenditure which may be traced in a great measure, if not entirely, to the same chain of causes. The history of what is called the Bellary Water-supply Project is recorded in a Government Order of the 2nd November 1874, No. 3,118. The original estimate amounted to Rupees 69,300. The works have cost Rupees 1,41,628, of which it is calculated that Rupees 40,000 have been uselessly expended. There were grave errors in the executive arrangements connected with the works, it is true, but the project as originally presented was so defectively prepared, the specifications were so faulty and imperfect, the rates so fictitious, and there were such violations of constructive and hydraulic principles, that wasteful expenditure was the necessary consequence of its adoption. The system threw on the Superintending Engineer of the Division the duty of final examination of the designs, but in the first place there was no guarantee that the previous experience of the officer who held that appointment, or that of the Range Officer, had included the design and construction of such works, and, moreover, the absence of all formularies to which the latter would be bound to adhere in preparing his project, and on which examination in the Superintending Engineer's Office would be based, removed all safeguard against the ill-effects of such inexperience, while finally the non-existence of a central office of technical administration where the necessary knowledge would be found, rendered still more possible the approval by Government and the initiation of works the failure of which should, under a proper system, have been foreseen.

12. The Ulsoor Water Works at Bangalore during the course of their construction have not omitted to supply illustrations of the defects of the present system. The reservoirs for the storeage of water or for its retention during the process of filtration, have, it is believed, almost without exception given way at some time or other, and their repair has been costly. There is even now awaiting sanction an estimate for the restoration of a ruptured filtering tank. All these failures were owing to simple errors in constructive detail, which proper specifications or descriptions of the design and the manner in which the work was to be executed would have prevented. The only test applied to the design and specifications as prepared was the personal experience of the Executive Engineer for the time being, not the collective experience of the department, and certainly not its hydraulic experience. The foundations of the reservoirs were some of them, if not all, built with stone-in-mud. The floors were founded on made-earth, both circumstances almost certainly fatal to stability. The previous experience of the department might easily have been epitomised in two or three standard designs and specifications for such reservoirs for water-supply. The system might have enforced reference to standards, scrutiny of the project might again have been based on these standards, and in this as in hundreds of other instances of various degrees of importance abortive expenditure might have been saved.

13. The Koilguntla and Cumbum Cutcherries in the Kurnool District are instances of the failure of buildings of another class. In both the foundations gave way from being built on made-soil or after a slovenly and inferior manner. But apparently the specifications were defective and trial pits were not sunk or sections of the soil supplied when forwarding the estimate. Here again there was an absence from defective system of the necessary check on the form and extent of the information given by the Range Officer and subsequently by the District Engineer.

14. In detailing in paragraph 9 the classification which might be given to the general causes leading to the failure of engineering projects, allusion was made to those included under the head of incorrect or imperfect information of the physical conditions which had to be dealt with, whether arising from incorrect surveys, levels or observations. As belonging to the first class it has been stated that, in connection with the Red Hill Project, the flood levels of the Cortelliar river were not correctly ascertained, and that the levels of the ground line at the base of the reservoir embankments were in error. Again, in the Chembrumbakum Project, a serious error of levelling was not discovered in time to prevent useless expenditure*. It is further to be observed that survey and levelling operations in general, as conducted at present by subordinates under the presumed direction of Range Officers, have often proved to be useless from their incorrectness and from the absence of proper check and record. The Cauvery surveys may be instanced, and also that under the Red Hill and Cholaveram tanks where, for want of proper supervision, the time and work of a Surveyor for months has been wasted.

The successful conduct of such operations as surveying and levelling, flood and tidal observations, and the establishment and record of bench-marks, or permanent reference marks for levels, requires more than in any other case proper system and check. At present if a project is to be investigated, or if observations are to be made, the District Engineer is directed to engage a temporary survey establishment. There

* £11,000 were wasted.

is no guarantee that those who present themselves for employment are really efficient; and as they have the prospect before them of being discharged so soon as they complete the work on which they are engaged, they have no great inducement to establish a good reputation. It is desirable that the Central Office should exercise more control over such operations, that a certain number of Surveyors should be permanently employed under the direct supervision of the Chief Engineer in carrying lines of initial levelling and establishing bench-marks in directions where they are required for the study of projects of irrigation, &c. The work of Surveyors employed by the District Engineers would be checked by these levels, which would only be known in the Central Office, so that all falsification of field work would be at once detected. For the gauging of rivers and streams it is desirable that primary forms of registration should be issued by the Chief Engineer as well as those for abstracting the results.

15. In carrying on the executive duties connected with the construction of works, no formulation of details and no general instructions will altogether replace that practical knowledge which experience alone can give; but, on the other hand, it is most evident that the only way by which the officers of the department can benefit by the experience of others and avoid making mistakes, which, however corrected and afterwards avoided, are expensive to the State, is by the study of such formularies in which the experience referred to is epitomised. A thoroughly well-considered specification of the work to be executed in which the best methods of procedure are detailed, an estimate in which everything necessary is fully provided and in which the rates are based on well-established data; data available for reference and giving exact information as to the quantity of materials and the number of men necessary to execute a given quantity of work; plans containing full information and details of all the work to be done and drawn up by aid of the concurrent experience of the whole department as concentrated in standards and codes; these are aids to the officer concerned in executing the work which it would be the aim of the Central Office to secure to him, and it would thus in no small measure prevent failures apparently due to defective control and supervision.

16. It has been stated in a previous part of this paper that one function of a Central Office of Administration should be the collection of the results of general experience, and their application to the extension and improvement of processes and modes of construction, and the dissemination thereby of this experience throughout the Presidency generally, in a manner which would ensure the attention of officers of the department. It was added that practically with the present organization this function was not exercised. In proof of this it might be considered sufficient to allude to the fact already adduced of the non-existence of any but an obsolete code, of the absence of standard specifications, and of the absolute want of certain knowledge of the proper cost of most descriptions of work. But having taken as examples of defective conception certain works, and having shown how from defective administration their execution was undertaken under circumstances which ensured their failure, it will be a test of the efficiency of the present system to inquire how far by the natural operation of its machinery the experience gained by failure has been rendered effective in preventing the repetition in any other locality of similar mistakes, or to what extent the knowledge acquired during the execution of these works of specialities in construction, has been rendered available for the use of the department generally.

Now, as regards the Red Hill Project, it has been shown that there were certain glaring discrepancies between calculation and fact in respect of the flood-level of the Cortelliar river before and after the head works were constructed. The head sluice has been topped, the river has three times transgressed the limits assigned to it, and the anicut has been turned. But the calculations have never been verified. It is not known whether, and if so, to what extent the disasters were caused by want of knowledge of the proper co-efficients to apply to the hydraulic formulæ in order to adapt them to the case of the rivers of this part of the Presidency with their large inclinations of surface, sandy-beds and silt-laden waters. The proper co-efficients can only be ascertained by experiments, but the higher officers of the department are far too much harassed with the petty details of work which, under a proper organization, would be dealt with for them, to be able to find time for such inquiries, although it is for such purposes that they receive their higher technical education.

Again, from the manner in which the earthwork of the embankments of the reservoirs were executed, certain failures occurred. These have been remedied in various ways and after considerable trouble. It is not necessary to enter here into technical details. It is, however, certain that experience was gained which should be useful elsewhere, but there exists no effective means of diffusing it. If searched for it might no doubt be found in a number of Government Orders and in certain reports printed in Government Proceedings, but it is not brought home to those engaged in works; it is not to be found in text books for daily use. If the results here alluded to found their place in due course in standard specifications which were in the hands of all, and if it were the routine work of an office to enforce attention to them, the effect would be felt everywhere. The same observations apply to much more of the work of this project. A class of masonry was used which was of exceptional quality and suited to the important works which had to be constructed. Its cost was perhaps for the first time in this part of the Presidency ascertained, but this knowledge is of no avail elsewhere. There are no standard specifications for masonry of this description. The rates at which it was executed find no place in the schedule of rates such as they are, and the data are buried in station books and records which in a few years authority will be given to destroy.

17. The Bellary Water Works Project has already been referred to as an instance of the necessity for organized technical examination of plans and estimates. The causes of the failures of the work during construction are well known. The revetment of the main reservoir was pitched at too great a slope, and it was not supported at the toe by a foundation. Its slipping was inevitable, and the same result would follow a similar plan of construction wherever tried. The principal supply-channel, chiefly in embankment, had a surface inclination and section given to it which would induce a mean velocity of discharge of more than 7 feet per second—sufficient to render the embankment a vanishing quantity. It would be a proper exercise of the functions of an administration for the technical direction of the department to take note of such defects and accidents when they did occur, and to so disseminate the experience gained by embodying it in the codes and standards as to guard against any repetition of the faulty design. The code of construction would prohibit thenceforth such slopes for tank revetments; the specification for that species of work would direct the insertion of proper foundations; tables of maximum

velocities to be allowed or other information of the kind would be placed before subordinates, and the active enforcement of attention to standards and codes (without which they are useless) by the routine action of the Central Office of examination, would complete the safeguard. At present there is no safeguard except the personal recognition of defects by the Chief Engineer, in the course of a scrutiny necessarily cursory in character, of such projects and designs as may pass through his hands. But a trained Examiner with no more technical knowledge than an Overseer, and with nothing but the education of a matriculated student at the Madras University, aided by the codes and standards, and with the aptitude engendered by practice, would have been a machine quite efficient enough to have prevented the waste of Rupees 40,000 on the Bellary Water Works.

18. The reservoirs of the Bangalore Water Works have been mentioned as being all originally faulty. There is, however, no code of construction in which the laying down of the floors of masonry tanks on made-earth is prohibited. There is no standard specification for water tanks compiled with special reference to the avoidance of this defect for the future, nor is there any standard design in which properly constructed foundations for such works is shown. There is, nothing apparently to prevent the repetition in other districts, or in the same district by another officer, of similar mistakes. Nothing to prevent the adoption again of the same faulty design by Government except the personal equation, so to speak, of the Chief Engineer for the time being.

19. Very large expenditure has been incurred during the past ten or fifteen years at Bangalore in the construction of barracks and their accessories, and the experience gained should certainly have been most extensive and complete. Yet the history of the construction of the barracks recently completed at the Mount has shown that estimates and specifications of a very imperfect character were originally furnished for that work in 1868. But this is not surprising when it is considered that there is no provision for rendering available in one locality the experience gained in another on the same class of work. Had there existed during the years the barracks at Bangalore were under construction, a central office of administration, of a technical character, complete in its organization—one of whose functions it was to watch the results of operations—to ascertain how far estimates had failed to provide what was necessary, in what respects rates had proved insufficient, where specifications had been incomplete in description, how far it had been necessary to alter or add to standard plans, and, finally, in what degree the constructions had after all answered the purpose in view, and if, moreover, standard plans and estimates had been revised, and specifications altered and enlarged in accordance with the teachings of such experience, the data for the designs and estimates at the Mount would have been tolerably complete, and the officers who were charged with their preparation would have received such assistance as they had a right to expect. But in addition to this since under the arrangements supposed the plans and estimates and specifications, whatever they were, would have been subjected to the trained scrutiny of that very section of the central office which dealt with the designs for the barracks at Bangalore, there would have been an additional guarantee that what had been learnt at the one locality would have been applied for the benefit of the work at the other. The mode of working has been very different. The Range Officer at the Mount was probably called on to prepare designs and estimates, with the assistance of some of the standard skeleton plans of barracks furnished by the Government of India,

He might probably never have been charged with work of the kind before, and there was no central office where experience existed and whence he could derive assistance or information. It is not to be wondered at, therefore, that estimates were exceeded between 20 and 30 per cent., and that revised estimates were succeeded by other revised estimates; that specifications and, consequently, executive arrangements were defective. Again the experience gained at the Mount is of no avail for use elsewhere, and if barracks were now called for at Bellary much of the work would probably be to the officer concerned tentative in its nature.

20. The Guindy Water Supply Project is practically a failure; yet the department had carried out at Bangalore arrangements for the application of steam-power to pumping purposes. The special knowledge of the one locality was not, however, available for the other.

21. The failures of certain bridges and anicuts during the floods of 1874-75 brought into prominence the necessity for providing in such works more than had previously been the practice, against the effect of upstream scour whether caused by lateral (cross) currents or impinging flow of water. So long as the officers present during the floods are concerned with the construction of the same works in the flooded districts, the necessity will probably be recognized and provided for; but when they leave or in districts not affected, there is nothing to prevent the experience gained from being lost. It has no expression in any general standard code or specification for bridge or anicut work, for there are none such.

22. Numerous, indeed almost numberless, instances might be adduced in support of the assertion, that that function of technical administration which diffuses the experience gained and guards against the repetition of error is practically in abeyance from want of the organized subordinate assistance which is necessary in order to carry it out.

23. In the memorandum already referred to of September 1874, addressed by the writer to the Chief Engineer, it was stated to the effect that although efforts had been sometimes made to convey instruction they were necessarily spasmodic and abortive. As an instance showing the defective organization provided for this purpose, Dr. Nicholson's labors in the analysis of natural and artificial cements and limes may be mentioned. This officer was employed for, it is believed, some months, and produced a valuable report which, together with a box of specimens, was sent to each District Engineer. There has been no evidence whatever that the knowledge acquired has been utilized, and it seems in the highest degree probable that no improvement in construction will follow. The machinery by means of which such researches would be turned to general profit does not exist, and yet it could be simply arranged. Let a list of limes and cements for each district be constructed, let the denominations be fixed and the compositions where artificial be laid down, let the use of certain limes and cements be described in the standard specifications for the works to which they are applicable, let them be entered in the standard rates with ascertained prices from given data, and finally (without which all would be in vain) let it be the routine work of the central office to enforce attention to these standards; the benefit to be derived from the experiments would be brought by this steady, unremitting pressure irresistably into operation.

24. It would be easy to enlarge to almost any extent the foregoing description of what the writer conceives to be some of the functions of an organized central administration for the direction of the technical work of the department. The argument for its employment rests on the grounds of economy and efficiency. It would be economical, because it is possible under such circumstances to sub-divide duties and so to simplify them. One section may deal with everything relating to civil buildings; another may devote itself to roads; another to military buildings; and another to town water supply and irrigation. The requirements of each class of construction may be thoroughly mastered, so far as they are laid down by orders of Government, standards and formulæ, and that by subordinate agency. Examination and check of projects and even design may become to a great extent a matter of routine and almost instinct. It would be efficient, because it is made mechanical; formal certainly, but unvarying in the certainty of its operation, and the effect of the pressure it would unremittingly exert would filter throughout every grade of the executive branch.

25. A duty of the central office would be the production of standard designs. The issuing of these has already been recognized as beneficial and to a considerable extent carried out, but the extension of the system is necessary. Talent for design is not by any means common, and its full employment where recognized should, if possible, be ensured, and in a manner in which its influence would be most generally felt. The education of subordinates is promoted by placing before them for execution designs framed on sound principles, and not only should they be prepared for established types of buildings, but for works of irrigation, for details, such as carpentry, joinery, and even fittings as the iron work of doors and windows, sluice shutters, and gearing. It must be recollected that the knowledge of artisans in the districts is on such points exceedingly defective, and there is no doubt that a series of illustrations on European pattern of such apparently insignificant details as are included in the iron work of a dwelling house would have good effect if placed in the hands of Overseers as models for imitation. A description of the fitting of the doors and windows of certain subsidiary jails, recently given by the Collector of the district, showed how primitive were still the ideas on such subjects of native subordinates and workmen. Every standard design, whether of buildings or details, with its specification, numbered and occupying its place in the series, would form a stand point of reference for the central office and for those in the districts, and it would thus be forced into knowledge and use.

26. The functions of a central office, such as has been alluded to, are also intimately connected with the management and utilization of the Central Workshop at the Presidency. There are many general questions involved which affect the works throughout the districts. The extension of railway and steam communication should vastly enlarge the field for the economical supply of manufactures from the Presidency town. It is not easy to understand why unsawn and unwrought timber should be sent from Madras to the districts. Why, in fact, it cannot be sawn and often even wrought and fitted ready for framing or fixing in the Madras workshop and forwarded with the necessary iron work at a cheaper rate than under present arrangements, where wood is often obtained from long distances in log and worked up by village carpenters. It should be possible to supply now by rail a much larger proportion of the joinery required in the districts than is now done. The use of iron girders for road bridges has extended but little in the country; yet the advantages they confer of large

effective waterway and diminution of the number of costly pier foundations and the absence of centering during construction are very important. All such matters are now left practically to the discretion of the District Engineers or even Range Officers, but it seems clear that they would be better dealt with in the office of the Chief Engineer.

It is a matter for observation that the administration of the Railway Constructive Department has been too much separated from that of Public Works generally. At any rate it would certainly seem desirable that experience gained in one branch should be available in the other, and yet it is not so. While, on the one hand, officers of the Public Works Department might learn something from the details of station buildings and the use of iron on railway bridges; the Railway Officers, on the other hand, might no doubt, had they studied the experience of Madras Engineers, have avoided mistakes in the construction of bridge foundations which have caused very large outlay in repairs. The elaboration of standards in design and specification on either side, and the interchange of these and schedules of rates, would prevent this considerable waste of experience.

27. The training of the subordinates in the Civil Engineering College ought to be a subject of continued scrutiny by the central administration. The object in view being to ensure that the text books used were precisely in accordance with the codes adopted in the department. In fact, the codes, standard plans, specifications and forms generally which were in use in the districts should form the text books of the students; and some practical training in the workshops, in carpentry and iron work, might well form a part of the educational course.

28. The above is a very imperfect sketch of some of the duties which might be undertaken by the central office for the administration, in a technical sense, of the Public Works of the Presidency, and let it be remembered that by the present system their performance is not really provided for at all, or at any rate only recognized to some extent and most imperfectly provided for in the Irrigation branch. No doubt this tendency to decentralization and this habit of making each district a species of *imperium in imperiô* originated at a time when communication was difficult, and when officers were isolated and thrown on their own resources. This is, however, no longer the case; railways traverse those parts of the Presidency which were formerly the most inaccessible. Steam communication along both coasts renders nearly all parts of the districts which are without railways of easy access from Madras, and every District Engineer can, by telegraph, place himself in instantaneous communication with head-quarters. Almost complete centralization is, therefore, perfectly practicable, and its advantages in the present case would be enormous. The failure of projects alluded to above is no measure of the amount of money which may be unprofitably spent. It is impossible to say how much of the expenditure for repairs is due to faulty construction originally. It is impossible to deal with the work as it is now sent up without becoming convinced of the great necessity for reform in an organization which produces it and the importance of the results which would follow. It must be admitted, however, that a difficulty exists in carrying out the change. Most of the arguments in favor of the provision of a central technical establishment will probably be endorsed by the Chief Engineer, who the writer is aware has long been in favor of the introduction of a technical subordinate element into the central office. The rigid restrictions imposed by the Government of India in respect to establishment charges,

and the extreme difficulty which already exists in meeting with the present establishment, the urgent demands from the districts for officers to supervise current work, has rendered it, and still apparently renders it, impossible to provide the necessary staff at head-quarters. Expenditure on establishments has always been viewed simply in relation to the outlay on works, and the rates of establishment charges to the outlay has been considered to afford the means of judging whether such establishment was or was not excessive. But a very important element in the question is the area over which the expenditure is distributed. In this Presidency, on the average, every District Engineer supervises works scattered over 5,800 square miles of country. Every Range Officer's charge is 1,750 square miles, and that of every Overseer 655 square miles. Under such circumstances, establishment charges must necessarily represent a very large percentage on the general expenditure, and a mere consideration of that percentage without reference to areas leads to fallacious ideas and restrictive orders which operate perniciously. It is worthwhile, however, to consider whether even under present circumstances the more efficient administration which it is believed would follow the centralization advocated would not far more than compensate for the reduction of district supervision and establishment which the concentration of the necessary staff at head-quarters would at present entail. And if the conclusion arrived at is that that staff cannot be provided without an increase to the general strength, while at the same time the necessity for its employment is admitted, it seems desirable that the fact should be authoritatively stated, and that the responsibilities involved by continued restriction should be clearly announced.

29. To sum up, the changes suggested as being desirable are —

(1.) The formation of a complete staff for the office of the Chief Engineer containing a large and picked element having technical and special knowledge.

(2.) The placing of this staff under the direction of one or more officers, to be specially charged with the technical administration of Public Works under the Chief Engineer.

(3.) The allotment of a certain proportion of this staff or of additional staff to furnish technical assistance to the Chief Engineer for Irrigation.

(4.) The placing of the public workshops under the direct control of the senior officer in charge of the technical staff or office of the Chief Engineer.

(5.) The formation of a Standing Committee consisting of the Controller of Public Works Accounts, the officer in charge of the technical staff, and the Principal of the Civil Engineering College, to arrange the general course of education and training at the College, and to maintain its accordance with the practical work in the districts.

The duties of the officer or officers and the staff attached to the Chief Engineer would be : —

(*a.*) The thorough and searching examination of all projects, plans and estimates for New Works, whether Imperial, Provincial, or Local Fund. The examination of details carried on by the subordinate staff to be based on the standards and codes and general instructions, formularies, &c., maintained and issued by the officers in charge, and the projects to be reported on to the Chief Engineer by these officers as to their general scope, feasibility, &c. Instructions for the revision of estimates and projects will be

issued, and fresh designs will occasionally be prepared to give aid to the district officers. A percentage of repair estimates to be also examined.

(*b.*) The maintenance in complete efficiency of codes, standard specifications, schedules of rates and data, standard plans, tables, &c., by their continual correction and enlargement in accordance with orders issued by Government, or with the results of current work and experience or research, and the regular issue to all officers of the department of amendments or additions so worked out, of standard plans, and of instructions of general utility and application, under the authority of the Chief Engineer.

(*c.*) The preparation, in a systematic manner, of forms for correspondence, returns, estimates, and reports, and their issue in print to officers of the department as well as the enforcement of their use.

(*d.*) The inspection of works in progress on behalf of the Chief Engineer, the preparation of reports thereon, and the issuing of instructions to officers concerned with their execution, under the authority of the Chief Engineer.

(*e.*) The study of general questions affecting construction throughout the Presidency. The utilization of experience gained by the record of facts for future guidance. The reception and preliminary study of proposals for works coming from other departments of the administration. The acquisition of a knowledge of the progress of engineering in other countries so far as it can be gained from published works and reports.

OOTACAMUND, (Signed) A. DEC. SCOTT, Major, R.E.,
29*th September* 1875. *Under Secy. to Govt., P.W.D.*

No. 576. *Chief Engineer's Memorandum.*

I AGREE in the conclusions summed up in paragraph 29 of Major Scott's elaborate and practical memorandum, and I would provide the assistance required by the Chief Engineer by the creation of a Deputy Chief Engineer with rank of Superintending Engineer, 1st Grade, in lieu of the two Inspecting Engineers who now form a nominal part of the establishment, but whose functions have had to be held in abeyance of late on account of the scarcity of District and Executive Engineers. For the assistance of the Chief Engineer for Irrigation, the services of the Under Secretary to Government might be made exclusively available, with the designation of Assistant to the Chief Engineer for Irrigation, and his present rank of Executive Engineer, 1st Grade. To give Assistants of lower standing would not sufficiently strengthen the hands of the Chief Engineers; and to permit of freedom in dealing with all papers in the offices of the Chief Engineers and Secretaries to Government, both Assistants should be Under Secretaries. The duties of the Chief Engineer's Deputy may be simply stated as those of the two Inspecting Engineers combined; those of the Assistant to the Chief Engineer for Irrigation would be the performance of such portions of the latter officer's work as he might desire to confide to him. Adequate office establishments might be made up from the members of the former

This accords with Government of India proposals in their No. 635 of 8th May 1872 (G.O., No. 2,190, of 14th September.)

In accordance with the practice in Bombay.

Inspecting Engineers' establishments now distributed amongst five Superintending Engineers, and by a selection from the offices of the Secretary to Government, Chief Engineer for Irrigation, and Lithographic Establishment.

OOTACAMUND,
18*th October* 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Chief Engineer, Public Works Department.

No. 1,257.

I HAVE read with great interest Major Scott's very valuable memorandum, dated September 1875, on the technical administration of the Public Works Department. His observations point to defects in the present system which are of essential importance, and there is no room for doubting the possibility of removing, by the reforms he advocates, the causes of inefficiency, and consequent waste of money, at any rate to a very large extent. It may be noticed here that I have found that, in too many cases, the instructions which have been given during tours of inspection, and in the notes of inspection, are not attended to as fully as they should be, even as regards the particular works in connection with which the instructions were given, while their extended application to other works similarly circumstanced is but rarely made.

2. There is undoubtedly vast room for improvement, and it is clear that, as far as possible, the task of ascertaining that orders and instructions are receiving attention, must be transferred to comparatively subordinate establishments, seeing that it is altogether impracticable for the Chief Engineers to attend properly to such details. We cannot possibly read, for instance, all the specifications that come in, neither can we, as a rule, see whether the dimensions of masonry works, the designs for which are submitted for sanction, are all correct. Such details are often examined into and put right, but there is not time to do this regularly and invariably. Very few district officers show on their plans the essential information needed, but, at present, so far as irrigation work is concerned, I have myself to look over the plans, see what is wanting, and return them that omissions may be rectified, and of course there is great waste of time in taking up projects and then being unable to dispose of them, because certain well known requirements have not been attended to. In some districts, notably in the Godavery Delta, the way in which work has been carried out, as well as the data on which the works have been arranged, has been greatly improved in recent years, but this higher standard is at present almost incapable of communication to other districts, because there is no machinery available for making available the experience of, and the results worked out by, officers in the delta of exceptional intelligence and zeal, or of ensuring attention to the general instructions which are issued from time to time for the guidance of all in consequence of circumstances coming under observation in particular localities. To take a very simple instance. Every officer of even very small experience must know that fat limes are unadapted for use on hydraulic works; the evidence that this is the case is patent, well their attention has been called to the subject; they have been told how these limes, if hydraulic limes be not available, can be made serviceable, and recently they have had Dr. Nicholson's reports to help them. It is still, however, quite an exception to find hydraulic mortar in use, and I often find shell lime—the fattest of the fat—entered in specifications for tank sluices and other works similarly situated, although it is certain that such lime, so used, can never set.

3. In some particulars my opinions differ to some extent from the views enunciated by Major Scott, and I have made a few notes in the margin of his memorandum.

4. As regards the reorganization of district establishments, I am of opinion that, if any change be made, the alterations should be such as to ensure every separate executive charge being held by a member of the department, who may be presumed to have the necessary qualifications. There are many Range Officers now who cannot be expected to carry on their work satisfactorily: they are qualified only to carry out definite instructions and to be subordinate executive agents.

FORT ST. GEORGE,
23rd October 1875.

(Signed) JOHN MULLINS, Lt.-Col., R.E.,
Chief Engineer for Irrigation.

THE following remarks are submitted with reference to the details of the establishments required for the offices of technical administration of the non-irrigation and irrigation branches of the Department of Public Works.

2. The work to be done *at the first* includes not only that involved by a performance of what will be the normal duties of such offices, but also the construction of the machinery which is to economize labor.

Codes, standing orders, standard plans and specifications, forms and tables have to be elaborated and brought into general use; an immense mass of unused information which has accumulated for years, especially in the Irrigation Office, has to be digested and made available, and order and method have to be introduced.

The strength of the staff in either branch ought to be sufficient to cope with the work which presents itself under both aspects.

3. The immediate head of the non-irrigation branch, by whom is meant the Deputy Chief Engineer or Inspecting Engineer, whichever designation may be adopted, ought it is thought to have in his office at least one young officer of Engineers of about four or five years standing as an Assistant, and two subordinates besides, who should possess technical knowledge, both practical and theoretical, of elementary engineering and general construction.

Draftsmen, Estimators, Computers, Clerks, Plan and Recordkeepers are, of course, understood accessories, but the work performed by the three former is almost purely mechanical, and cannot replace the element which affords intelligent technical supervision of details.

The employment of the younger officers of the corps is not too costly, while their high technical and general education which includes the higher mathematics and physical science would enable them to render valuable assistance in any branch of construction.

4. The amount of work which ought to be taken up as properly belonging to the irrigation branch is most extensive, and the arrears to be disposed are immense.

For years the central office has been swamped with projects, reports, statistics and plans which it has been impossible to deal with. The end and object of so much work in collecting information was a comprehensive study of the economics of irrigation and

the application of such study to current work, but it has remained in a great measure barren of results, because no one had leisure to abstract and establish principles.

A young officer of Engineers of three or four years standing might be usefully employed in working up these arrears, and preparing standard plans and specifications without dealing at all with current work, which to deal with effectually requires in addition an Assistant to the Chief Engineer. . . .

Some additional clerical assistance and some draftsmen will also be required for the compilation of statistics and the drawing of plans, &c., designed as standards.

5. Considering that the approved organization provided for two Inspecting (first-class Superintending) Engineers, the employment of one such officer with two junior officers involves no startling change.

13th November 1875. (Signed) A. DEC. SCOTT, Major, R.E.,
Under Secy. to Government.

No. 576-A. MINUTE BY THE HONORABLE THE GOVERNOR.

MAJOR DEC. SCOTT's paper is admirable, and deserves the full commendation of Government.

2. It is most seriously to be regretted that, after so many years, deficiencies so serious should rule in the department. I attribute this condition in large measure to the initial error of making the head of the department a Secretary to Government, and to dealing with all sorts of departmental subjects, organizations, &c., as if they are matters to be disposed of by Government and suited for the decisions of Government. Confusion in the administration of Government and shortcomings in the department have been the inevitable consequences, and will continue in their degree; while attempted rectifications will be costly.

3. I have no objections to the proposals made by General Walker, except in so far as I entirely object to have further Secretaries and Assistant Secretaries to Government created. The duty required from the additional aid sought by the heads of the respective Engineering Department, are purely departmental—wanted for the satisfaction of the Chief Engineers who have to submit projects to Government as Secretaries, and additional aid afforded—must be strictly separated from the Government Secretariat.

4. I approve of the creation of a Departmental Chief Engineer and think that the Chief Engineer for Irrigation should have an Assistant in his departmental capacity.

5. I would ask the Chief Engineer to report more in detail the reorganization. I cannot join in asking increased establishment which he proposes with a view to remove the obvious shortcomings brought to notice.

8th November 1875. W. ROBINSON.

No. 577. Note by the Hon. R. S. ELLIS, dated 4th November 1875.

No. 578. Note by the Hon. W. HUDLESTON, dated 6th November 1875.

No. 579. Note by His Excellency the Commander-in-Chief, dated 22nd November 1875.

No. 580. ORDER THEREON, 24th November 1875, No. 3,373.

ESTABLISHMENT, No. 38.

HIS EXCELLENCY the Governor in Council has read with much interest the excellent memorandum of the Under Secretary in the Public Works Department. He has, in the clearest language, described the necessity of an organized central administration for the direction of the technical work of the department, and he has brought very apt illustrations of facts in support of his argument. The acknowledgments of Government are due to him for his excellent paper.

2. It is concurred in essentially by the Chief Engineer of Department Public Works and by the Chief Engineer for Irrigation, and the practical suggestions made by the former for carrying out his views commend themselves to the approval of Government.

3. The Senior Inspecting Engineer, Colonel E. A. Foord, R.E., whose work as such is at present in abeyance, is accordingly appointed Deputy Chief Engineer, an office the creation of which has already been approved by the Government of India in their letter recorded with G.O., No. 2,190, of 14th September 1872; his departmental rank remaining that of Superintending Engineer, 1st Grade. He will also be styled, and perform the duties of, Under Secretary in the Public Works Department. During his absence on leave the Junior Inspecting Engineer, Lieutenant-Colonel Farewell, who is shortly expected from home, will officiate for him. From the date of his assumption of his new duties, Major A. deC. Scott will become the Assistant of the Chief Engineer for Irrigation and Under Secretary in the Irrigation Branch of the Public Works Department, with his present departmental rank of Executive Engineer, 1st Grade. If possible, a junior officer of the department will be attached to each of them, at a later date, when the strength of the department shall have been completed, and those now joining it shall have acquired some experience.

3. The members of the office establishments placed at the disposal of Superintending Engineers in G.O., No. 1,328, of 18th May 1874, will proceed to Madras, and report themselves to the Under Secretary in the Public Works Department, who will arrange for their proper employment.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 581. Read the following letter from J. O'SHAUGHNESSY, Esq., Acting District Engineer, Tanjore, to Lieutenant-Colonel J. MULLINS, R.E., Officiating Secretary to Government, Public Works Department, dated Camp at Negapatam, 15th July 1875, No. 1,236:—

IN reference to G.O., No. 91, dated the 9th July 1874, I have the honor to forward a plan and estimate with specification, one sheet of detail drawings, and plan of site, for the office and record-room proposed to be built at Tanjore for the Registration Department.

1 Plan.
1 Detailed Plan of Doors, &c., &c.
1 Abstract Estimate of Rupees 7,750.
1 Specification.
1 Site Plan.

2. I have consulted the District Registrar in regard to the dimensions of the several rooms, and his signature is attached to the plan in token of his approval.

No. 582. ORDER THEREON, 25th November 1875, No. 3,374.

CIVIL WORKS, No. 38.

THE detailed plans and estimates will be referred to the Judicial Department for approval or otherwise, with the observation that the construction of only two additional rooms was sanctioned in Judicial Department Order, No. 1,084, of the 15th June 1874, and that, as a large record-room is proposed to be built, the question of making it fireproof should apparently be considered by the Inspector-General of Registration.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 583. Read the following letter from Captain L. CONWAY-GORDON, R.E., Controller of Public Works Accounts, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 15th November 1875, No. 138 W. :—

IN forwarding the accompanying letter with enclosures from the Government Mathematical Instrument Maker, received under endorsement, No. 750, of 17th September 1875, from the General Superintendent, Public Works Stores and Workshops, I have the honor to request that, as suggested by Mr. Doderet, District Engineers may be instructed to forward to the Public Works Workshops all scientific instruments requiring repair.

No. 584. ORDER THEREON, 25th November 1875, No. 3,375.

ACCOUNT, No. 17.

THE attention of District Engineers will be called to G.O., No. 278, of the 5th February 1874, impressing on them the necessity for seeing that scientific instruments are not retained in their districts in an unserviceable state instead of being forwarded to the Government Instrument Maker for repair. All such as do not come within the classification of those referred to in the Government of India Circular communicated under G.O., No. 1,312, dated 29th April 1868, should be despatched to Mr. Doderet without delay.

2. From the correspondence communicated with the Controller's letter, No. 138 W, of the 15th instant, there is reason to infer that there is considerable laxity by Range Officers in the submission to the Controller of the regular half-yearly store returns, and that officer is requested to call for their punctual despatch.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 585. Read the following letter from Major J. BEATTY, R.E., Acting Superintending Engineer, Godavery District, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, Madras, dated Dowlaishweram, 8th November 1875, No. 2,345 :—

IN G.O., No. 236, of 26th January 1875, Government were pleased to sanction an estimate, amounting to Rupees 850, for substituting a tiled roof at the building now used as a Range Office at Gunnaveram, in the Central Delta, instead of the present thatched one, and funds to carry out the work were provided in the Budget of the present year.

1 Plan.
1 Estimate.
1 Specification.

2. Before, however, the work could be put in hand, the old walls which now support the thatched roof cracked so badly that I consider it unwise and unsafe to attempt putting the new roof, which would be heavier than the present one on those walls.

3. The walls are of brick in mud plastered, and the building is an old one, but the site is close to the river and the canal, which of course are dry for a part of the hot season while the canals are closed for repairs, and probably the soil about the bungalow this year became a little drier than usual; at least this is the only way I can account for the cracks, as the walls had stood the same weight of roofing for many years, and were apparently quite strong enough to bear a tiled roof.

4. Under these circumstances I surrendered the grant* provided for the tiled roof, and think it very advisable that the new range office † of the Central Delta should be constructed as soon as possible. I have therefore now the honor to submit an estimate, amounting to Rupees 4,750, for such a building prepared according to the standard plan.

* *Vide* statement accompanying my letter, No. 1,668, of 31st August 1875.

† *Vide* Chief Engineer's memorandum, printed with G.O., No. 1,077, of 18th April 1871, paragraph 40.

No. 586. ORDER THEREON, 25th November 1875, No. 3,376.

CIVIL WORKS, No. 39.

THE estimate is sanctioned and will be included if practicable in the Budget of 1876-77.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 587. Read the following letter from Captain L. CONWAY-GORDON, R.E., Controller of Public Works Accounts, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 24th November 1875, No. 149 W. :—

WITH reference to the Proceedings of Government (No. 42), under date the 5th November 1875, I have the honor to request that you will be so good as to inform me whether the construction of the three Police huts at Penchakulpaud therein sanctioned is to be undertaken by the Public Works Department.

2. According to the statement of Police Works printed with the Proceedings, Public Works Department, No. 113, of the 14th August 1875, the construction of these huts at Veldoorty, as originally proposed, was to be carried out *by the Police Department,* from the Police Lodging Fund. If however it is now intended that the work be carried out by the Public Works Department, it will be necessary for me to apply for a transfer of funds.

No. 588. ORDER THEREON, 25th November 1875, No. 3,377.

CIVIL WORKS, No. 40.

THE Police huts at Penchakulpaud are to be erected by the Police Department as sanctioned in G.O., No. 113, dated 14th August 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following papers :—

No. 589. Proceedings of the Madras Government in the Financial Department, dated 16th October 1875, No. 2,049.

Proceedings of the Madras Government in the Revenue Department, dated 16th October 1875, No. 1,514.

ABSTRACT.—Remarking on the Board's Proceedings reviewing Statements of Receipts and Charges on account of the Government Farms at Sydapet for 1874-75; and directing it to be considered in the Financial Department how the surplus funds may best be utilized in 1875-76, with reference to the provision of the law making them available for purposes of public utility.

IT is observed that the appropriation of a moiety of the Surplus Pound Funds in 1874-75 to Government Farms resulted in a transfer credit of Rupees 56,756.

2. It may be safely assumed that in the current year, 1875-76, the amount to be so credited would not be less than Rupees 50,000, and the Governor in Council accordingly directs that this amount be credited from Surplus Pound Funds to Local Funds in lieu of "Government Farms," in diminution of the grant of Rupees 11,40,000 made to Local Funds from Provincial Funds for 1875-76, and that the sum of Rupees 50,000, Provincial Funds, thus released, be re-allotted to the Public Works Department for expenditure on Civil Buildings in progress or sanctioned; thus raising the aggregate assignment to that department for 1875-76 from Rupees 8,00,000 to Rupees 8,50,000.

3. Any excess beyond Rupees 50,000 in the moiety of the Surplus Pound Fund may be credited to the Government Farm Fund in 1875-76.

4. It will be observed that these orders do not affect the amount at disposal of the Local Funds in the current year.

5. The Accountant-General will make the necessary transfers.

(True Extract.)

(Signed) D. F. CARMICHAEL,
Officiating Chief Secretary.

No. 589-A. From the Consulting Architect, dated 16th November 1875, No. 767.

No. 590. Order thereon, 26th November 1875, No. 3,378.

ACCOUNT, No. 18.

From the sum of Rupees 50,000 allotted for Public Works in the above order, the following appropriations are made :—

District.	Work.	Amount of Estimate.	Date of Sanction	Outlay.	Amount allotted.	Remarks.
	Provincial.	RS.		RS.	RS.	
	Civil Buildings.					
Ganjam ...	Additional building for a Registrar's Office attached to the Tahsildar's Cutcherry at Berhampore.	1,570	G.O., No. 103, dated 8th April 1875.	...	770	
Vizagapatam. .	Assistant Agent's Bungalow at Korapat.	30,470	Estimate under consideration.	22,716	7,700	
Nellore ...	Police Hospital at Nellore ...	6,370	G.O., No. 42, dated 3rd December 1874.	...	...	
	Contribution from Local Funds ...	...	....	1,400	...	
	Provincial	...	....	502	4,000	
				1,902		
Do. ...	Improvements to the Prison Wards of existing Taluq Cutcherry, &c., at Ongole.	940	G.O., No. 222, dated 28th August 1874.	...	500	
Bellary ...	Improving the Travellers' Bungalow at Pennacondah for the accommodation of the Sub-Collector.	5,219	G.O., No. 3,084, dated 29th Oct. 1874.	4,456	763	
Presidency ...	New Entree Stair-case to west end of Banqueting Hall.	4,500	G.O., No. 2,843, dated 2nd Oct. 1875.	...	4,500	
Do. ...	Stables, &c., for the use of the Resident Surgeon at the General Hospital.	750	G.O., No. 523, dated 24th February 1875.	...	750	
Do. ...	Adding a Library and Lecture Hall to the Museum.	41,200	G.O., No. 2,918c, dated 4th Dec. 1873.	32,448	5,000	
Chingleput ...	Supplying the two new office premises with required fittings in Begum's Bungalow at the Mount.	1,020	G.O., No. 1,885, dated 3rd July 1875.	...	1,125	
Do. ...	Providing partition wall, &c., to No. 1 Barrack Store-room at the Mount.	105				
North Arcot...	Alterations and improvements to the Collector's house at Chittoor.	9,730	G.O., No. 48, dated 7th January 1875.	4,498	5,200	
Do. ...	Adding rooms for the Registration Department to the Taluq Cutcherry at Wallajapett.	1,210	G.O., No. 160, dated 23rd Sept. 1875.	...	700	
Salem ...	Police huts at the Central Jail at Salem.	9,590	G.O., No. 76, dated 14th October 1874.	...	5,000	
Do. ...	Converting the old Taluq Cutcherry at Namkul into a building for Deputy Collector's Office.	676	G.O., No. 1,457, dated 26th May 1875.	...	676	
Tanjore ...	Registrar's Office at Tirumungalum.	375	Estimate under consideration.	...	375	
Nilgiris ...	Council Chamber at Ootacamund...	28,700	G.O., No. 2,115, dated 24th July 1875.	...	8,000	In addition to Rs. 10,000 allotted in G. O., No. 2,956 dated 15th Oct. 1875.
Wynaad ...	Deputy Collector's Cutcherry at Manantoddy.	19,600	G.O., No. 1,878, dated 3rd July 1875.	9,443	3,116	In addition to Rs. 5,000 allotted in G. O., No. 2,956 dated 15th Oct. 1875.
South Canara.	Enlarging the Deputy Tahsildar's Cutcherry at Hossdroog for the accommodation of the Sub-Registrar.	750	G.O., No. 3, dated 1st April 1875.	...	500	
	Repairs.					
Bellary ...	Repairing Taluq Cutcherry at Ghooty.	775	G.O., No. 36, dated 5th Nov. 1875.	...	775	
Wynaad ...	Repairing, &c., road between Tippukadu and Karkanhulla.	1,440	G.O., No. 3,065, dated 29th Oct. 1875.	...	550	
	Total ...	...	....	...	50,000	

2. His Excellency the Governor in Council trusts that the allotments now made will be fully expended during the current official year.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 591. Read the following Circular from the Government of India, Public Works Department (Railway), dated Fort William, 11th November 1875, No. 23 R. :—

Inspection of State Railway Works prior to opening.

RESOLUTION.—The Honorable the President in Council is pleased to issue the following instructions in regard to the inspection of State Railway works under construction, and in regard to their final inspection prior to opening the Railway for public traffic.

2. The usual detailed inspections will be made by the Engineer-in-Chief or other officer in charge of the line who, under the orders of the Director of State Railways, will be responsible for the efficiency of the works.

3. General inspections will be made by the Consulting Engineer to the Government of India for State Railways. These inspections will necessarily not be in such detail as to secure that all work is properly done. For that the Government of India rely on the Engineers-in-Chief and Superintending Engineers. The Consulting Engineer's inspections must be directed chiefly to informing himself so as to enable him to advise the Government on the engineering questions which may arise in connection with the works, and besides this to satisfy himself in a general way that the system of construction is sound and well administered.

4. Lastly, when a railway or section of a railway is reported ready to be opened for public traffic, a final inspection of it will be made by an officer of the Government Consulting Engineer's Department for Guaranteed Railways, under rules which have been drawn up for the information and guidance of all concerned.

5. It is essential to the complete information of the Government that the final inspection of a railway about to be opened for traffic shall be entrusted to an experienced officer who has not been connected with its construction. This is also an additional guarantee that nothing has been overlooked which is necessary to the due security of the public and the welfare and safety of passengers and railway servants.

ORDER.—Ordered, that this Resolution and the Rules alluded to in paragraph 4, be forwarded to all Governments and Administrations for information, and to the officers named in the margin for information and guidance.

Director of State Railways.
Consulting Engineers at Calcutta, Lahore and Lucknow.

(Signed) C. H. DICKENS, Colonel, R.A.,
Secretary to the Government of India.

Rules for the Inspection of Railways by an independent Officer prior to the opening of any section or sections for Passenger Traffic.

I.	Rules for Inspecting Officer.	V.	Desiderata.
II.	" " Manager.	VI.	Tests.
III.	Information to be furnished.	VII.	Forms.
IV.	Certificates of Manager.		

The object of inspection is to ensure safety and proper accommodation to the travelling public and railway servants; it is desirable, therefore, that such inspection should be confined to points directly bearing upon this object.

The Government of India requires, however, from the Manager of each Railway certain information for office record, and this information may embrace points outside the proper limits of inspection.

Section I.—Duties of Inspecting Officer.

As these inspections are made for the particular object of assuring the Government of the condition of the line, it is desirable that the Inspecting Officer should confine his report to points directly affecting the safety and welfare of the travelling public and of the railway servants, and should not introduce into his report any irrelevant matter.

He should be as concise as possible in his recommendations, stating briefly but clearly the grounds on which they are made. It will be assumed that any points on which he has made no remark do not, in his opinion, affect the safety or welfare of the travelling public.

He may recommend the railway to be opened either unconditionally, or subject to certain restrictions, or he may recommend a postponement of the opening.

The Inspecting Officer is to turn his attention to *all* questions affecting the safety of the public, but his attention is particularly directed to the following points:—

1. To the general formation of the line, and the necessity for increasing widths, flattening slopes, or preventing slips.
2. To the existence of sharp curves or gradients in dangerous positions.
3. To the general character and condition of the rails and fastenings, sleepers, and ballast.
4. To the strength and quality of all structures above ground.
5. To the waterways of the bridges and culverts, so far as to ascertain that they have been fully investigated by the proper officers.
6. To the provision of parapets or hand-rails where necessary on bridges and viaducts.
7. To the means of escape of railway servants in long viaducts or tunnels.
8. To any infringement of the standard dimensions of fixed structures.
9. To the protection of bridge platforms from fire.
10. To the character and condition of the fencing.
11. To the proper arrangements for level-crossings.
12. To the provision of proper gradient posts and mile marks.
13. To the character and condition of the points and crossings.
14. To arrangements for preventing the escape of vehicles from sidings in stations, either by gravity on an incline, or by force of the wind.
15. To the character, condition, and position of the signals.
16. To the width of the platforms, and their proper ramping at the ends.
17. To the sufficiency of accommodation for passengers at stations, especially with regard to latrine arrangements.
18. To the weight and dimensions of the rolling-stock and their limitation to the standards prescribed.
19. To the provision of cow-catchers on an unfenced line.

20. To the sufficiency of space and ventilation in the passenger carriages.
21. To the establishment of a proper and sufficient block system or other approved mode of working the traffic.

The character of the tests of iron bridges is given in Section No. VI.

The Inspecting Officer should furnish to the Government a record of the deflection and oscillation of all girder bridges of large span, and one of each type of small spans under the test loads. All bridges of about 40 feet span and over are to be considered "large span."

The Inspecting Officer should during his inspection intimate, as far as practicable, to the Manager, the general tenor of the recommendations he intends to make, in order to afford that officer the opportunity of discussing the points with him.

The report of the Inspecting Officer, with his recommendations, is to be sent to the Government of India who will issue such instructions thereon as may appear to be desirable.

Section II.—Rules for the "Manager."

The term "Manager" of any Railway is intended to mean the responsible officer in charge of the Railway at the time of the inspection, whether Engineer-in-Chief, General Manager, or Agent. If not an Engineer, he should be accompanied during the inspection by the Engineer-in-Chief or by any other officer of the Railway who can afford to the Inspecting Officer such technical information as he may require.

As soon as the "Manager" can fix approximately the date for opening the railway, he will give notice to the Government of the intention to open ; six weeks' notice will be required.

At the time of giving notice the Manager should send to the Government of India (through the Public Works Department Secretariat) the information required in Section No. III. in the case of State and Provincial Railways, either through the Local Governments and Administrations, or the Director of State Railways as the case may be ; and in the case of Guaranteed Railways through the Consulting Engineer.

The Government, after receiving this notice and information, will fix a date for the inspection of the line, and name the officer appointed for the duty.

The Manager of the line will enter into direct communication with the officer so appointed, and arrange with him the details of the inspection and the character of the tests.

The information sent by the "Manager" will be forwarded to the Inspecting Officer (to be returned by him to the Government of India after inspection) to enable him to study the subject before he makes his visit of inspection.

The Manager of the Railway, or such officer as he may delegate for that purpose, must accompany the Inspecting Officer in his inspections, afford him all information and assistance, and provide all instruments and arrangements necessary for applying such tests as he may require.

In order to save time, the Inspecting Officer will advise the Manager of the Railway beforehand of the character of the tests he will require, so that all arrangements may be made, as far as practicable, in anticipation of the visit of the Inspector.

The Manager will give to the Inspecting Officer in writing certificates that he will carry out any conditions he may have undertaken to perform previous to the opening of the railway for traffic, or of any restriction he may consent to adopt in the working. The responsibility of any infringement of the certified conditions will rest on the Manager.

If the Local Government or Administration or the Director of State Railways, as the case may be, considers the restrictions or conditions recommended by the Inspecting Officer to be unnecessary, impracticable, or undesirable, the matter may be referred to the Government of India for decision.

Section III.—Information to be furnished.

The information to be supplied to the Government of India together with the notice for opening will be as follows :—

1. A small index plan and section of the line, on which must be shown all curves, gradients, cuttings, and embankments, the position of large bridges, level crossings, stations, and mileage, slopes, &c.

The scale of the plan and section must not be less than 1 inch = 1 mile horizontal, and 1 inch = 100 feet vertical, with enlargement of detail, wherever the scale is too small to afford the prescribed information.

2.	A table of	curves,	see Form	A,	Section VII.
3.	„	gradients	„	B.	„
4.	„	ballast	„	C.	„
5.	„	important waterways	„	D.	„
6.	„	abstract of waterways	„	E.	„
7.	„	large bridges	„	F.	„
8.	„	stations	„	G.	„
10.	„	station machinery	„	H.	„
11.	„	station buildings	„	I.	„
12.	„	staff quarters	„	J.	„
13.	„	table of level-crossings	„	K.	„
14.	„	cost of railway under specified headings of account, Form L.			

Drawings.—*Note.*—If Government lithographed types have been adopted in any case, it will be sufficient to refer to the type, giving the date of the lithographs, and it will be unnecessary to submit drawings of them.

15. Diagram of standard dimensions of fixed structures.
16. Type section of formation and ballast.
17. Type drawing of permanent-way and fastenings, sleepers, and their arrangement, &c.
18. Types of small bridges and culverts, with detailed drawings of each type of girder.
19. Detailed drawings of all large bridges or girders.
20. Sections of tunnels.
21. Drawings of fencing.
22. Types of different classes of level-crossings.
23. Drawings of the points and crossings.
24. Plans of each type of stations.
25. Special plans of stations of which there are no types.
26. Diagrams of each type of locomotive showing length over buffers, position of wheels, and weight on each pair of wheels when the engine is in working trim.
27. Diagrams of each type of vehicle, showing the length over buffers, position of wheels, and the maximum load on each pair of wheels.
28. Cross-sections and plans of each kind of passenger vehicle, showing the arrangement, width and breadth of seats, the position of the lamps, the number of passengers for whom accommodation is provided, the cubic space per passenger and the general dimensions inside.
29. Diagram of the maximum moving dimensions approved by Government.

Section IV.—Certificates.

The following certificates duly signed by the Manager, are to be handed to the Inspecting Officer before he commences his inspection. These certificates must subsequently be sent to the Government of India and placed on record :—

(1.) Certificate that no structure projects within the limits of the standard demensions as given in No. 15, Section III.

(2.) Certificate that no engine or other vehicle exceeds the maximum moving dimensions as given in paragraph 29, Section III.

(3.) Certificate that no infringement of the standard dimensions either in structures or moving bodies will be made without the consent of the Government of India in writing to each case of infringement.

(4.) Certificate that no engine in working order exceeds the wheel weight given in diagram 26, section III.

(5.) Certificate that no carriage or wagon shall be loaded in such a manner as to give greater wheel weights than those shown in diagram 27, section III.

(6.) Certificate that no engines or vehicles shall hereafter be used on the railway differing from the types submitted (26 and 27, section III), without the express permission in writing from the Government of India.

(7.) Certificate that not more than three engines (two in the case of the light 5 feet 6 gauge) shall ever be allowed at one and the same time on any one span of a bridge with a single track.

(8.) That the structures have been executed in strict accordance with the drawings furnished to the Government of India.

Section V.—Desiderata.

The attention of Managers is particularly requested to the following points which the Government of India recommend for adoption :—

1. The provisional list of dimensions be followed as far as practicable : this list will be subject to alteration from time to time as found necessary.

2. Rails should be fished at the joints.

3. With flat-bottomed rails the rails on both sides of the joints should be secured either with fang bolts or else with coach-screws and keepers.

4. Gates capable of closing across the line should be furnished with signal boards and lamps that can be clearly seen by those on the approaching train, and should have gate-keepers provided with huts.

5. Mile and quarter-mile marks should be provided, and gradient posts for all gradients exceeding 300 yards in length.

6. Stations and Junctions should be properly protected by main and distant signals.

7. Arrangements should be made to avoid, if possible, shunting over a junction. And when two lines meet the junction should in ordinary cases be formed as a double line junction.

Tunnels, level crossings if not visible at a reasonable distance, difficult places, and steep inclines should be protected by means of telegraph or some other satisfactory plan of signal.

8. All signals worked by wire should be weighted so as to fly to ' Danger ' on the fracture of the wire.

9. Tunnels and long viaducts should be provided with facilities which will enable workmen to escape from an approaching train without difficulty.

10. The descent at the end of platforms should be by ramps, not steps. Platforms not to be *less* than 6 feet wide, and to be more when the traffic is large. No structure on passenger platforms should be nearer than 6 feet to the edge of the platform.

Facing points should be kept locked as far as practicable.

Carriages should not contain less than 20 cubic feet of space per passenger. All seats should be provided with backs, and should not be less than 15 inches broad and afford 16 inches width per passenger.

Proper parapets should be provided in all places used by passengers.

Stations should not be on gradients steeper than 1 in 250. When they are unavoidably on steeper gradients, proper catch sidings should be provided to prevent runaway wagons from descending the gradient.

Clocks at stations should be placed where they can be seen by the drivers and signal-men.

The block system, or some other system approved by Government, will be adopted for the working of the traffic.

Strict orders should be issued to all Managers of Railways not to allow more than three engines to be on any span of a metre gauge and heavy 5 feet 6 inches gauge railway, or more than two of a light 5 feet 6 inches gauge railway.

Section VI.—Tests.

System of Testing Iron-bridges on Railways in India.

The Government of India do not approve of the system of testing iron-bridges to an extent far in excess of the maximum loads they will have to carry in practice.

If tested heavily, a faulty portion is likely to be strained and to cause failure afterwards, and the extreme test is no more guarantee against failure than the lighter test.

The rolling loads assumed for the calculation of the strains in girders of railways should give nearly an equivalent to a maximum of three engines of the heavy class, two in the case of the light 5 feet 6 inches gauge with their full complement of water and fuel (if there is room for them on the span), and the remainder of the span covered with a train of wagons of the heaviest type, fully loaded. If this load be adopted in testing bridges after erection, it will suffice.

In long spans the loaded wagons should be both before and behind the engines, so that the engines may stand as near as possible to the centre of the span. Officers who test wrought-iron bridges should ascertain and report whether this load, together with the dead load (including the rails, platform, ballasting, asphalte, girders or cross girders, &c., &c.,) produces a strain exceeding 5 tons per square inch (or 4 tons in compression) in any part of the material whether in the main-girders, in the cross-girders, or in the rail bearers.

When material is exposed to a tensile strain, deduction must be made to allow for the diminution of area caused by rivet holes or otherwise. When subject to a compressive strain, deduction should be made to allow for diminution of area caused by imperfectly filled *rivet* holes, and by holes for pins or bolts whether filled or not.

The materials in some of the bridges sent from England will probably be strained to more than 4 tons per square inch in compression, but though this may in some cases be allowed, it must be, with the special sanction of the Government of India.

The testing load should pass over the bridge three times, and the deflection and oscillation (when practicable) should be noted at each time of passing.

At the first passage, the testing train should proceed slowly, and should be *brought to a stand* with its heaviest portion as near as possible to the centre of the span. It should remain in this position for at least ten minutes.

At the second passage also the train should proceed slowly, and be brought to a stand, but need not remain in that position longer than is necessary to observe the deflection. The object of this test is to ascertain the deflection after the girder has recovered from the first test.

At the third, the train should pass over the bridge at the speed of twenty miles an hour.

It is desirable that strict orders should be issued to all Managers of Railways not to allow more than three engines to be on any span at one and the same time.

For structures of cast-iron the breaking load shall be determined as follows:—

B = Total breaking load.

L = Total permanent load, structure, platform, &c.

l = Maximum moving load = three of the heaviest engines (two in the case of the light 5-6 gauge) as near as possible to the centre of the span, and the rest of the span covered with goods wagons of the heaviest type fully loaded.

$B = 3L + 6l$.

Section VII.—Forms.

FORMS A AND B.

List of Curves and Gradients. It is not necessary to give a "complete" list of Curves and Gradients, but simply an abstract under different classes. For the sake of uniformity, the classes given below should be adopted on all Railways.

No.	Form A.	
	Radius of Curves, &c.	Length, Miles.
	300 feet	
	Above 300 " to 400 feet inclusive.	
	" 400 " to 500 " " ...	
	" 500 " to 600 " " ...	
	" 600 " to 1,000 " " ...	
	" 1,000 "	
	Straight line	
	Total ...	

No.	Form B.	
	Gradients.	Length, Miles.
	1 in 30.	
	Above 1 in 30 to 1 in 50 inclusive	
	" 1 in 50 to 1 in 80 " ...	
	" 1 in 80 to 1 in 100 " ...	
	" 1 in 100 to 1 in 150 " ...	
	" 1 in 150 to 1 in 300 " ...	
	" 1 in 300 to 1 in 1,000 " ...	
	" 1 in 1,000	
	Level	
	Total ...	

All curves below the minimum of 300 feet radius, and all gradients below the minimum of 1 in 30, must be specially noted in addition to the above forms.

FORM C.

List of Ballast.

Position.	Length, Miles.	Character of Ballast.	Average lead, Miles.	Cost per cube (100 cubic feet.)	Cost per Mile.
M M					RS.
Between 1 and 28 ...	28	Gravel	1	4	2,400
" 28 " 32 ...	4	Broken-stone	1	5	3,000
" 32 " 45 ...	13	Burnt Clay and Sand... ...	3	7	4,200
" 45 " 81 ...	36	Kunker	4	4½	2,700
" 81 " 110 ...	29	Burnt Clay	2	6½	3,900
Total ...	110		Average ...	5¼	3,128

FORM D.

List of Important Waterways.

Name of River.	Position, Mile.	Drainage area, Square Miles.	Rise of flood water above low water level.	Declivity of bed, Feet per Mile.	Maximum velocity in flood, Feet per Second.	Openings. No.	Openings. Clear Span.	Openings. Flood, Area, Feet.	Openings. Flood discharge, Feet per Second.	Openings. Value of K.*	Character of Foundations.	Remarks.

* Value of K in the formula Log. K = Log. D—¾ Log. M.

Where D = Total discharge of the river in extreme flood in feet per second.

M = Drainage area in square miles.

K = Co-efficient for Colonel Dickens' formula.

FORM E.

Abstract of Waterway.

Clear Spans.	Total area of Waterway.	Area per Mile of Railway.	Remarks.
In culverts and bridges not exceeding 10 feet clear span ...			
In do. exceeding 10 feet but not exceeding 20 " " ...			
In do. " 20 " " 40 " " ...			
In do. " 40 " " 60 " " ...			
In bridges exceeding 60 feet clear span			
Total ...			

FORM F.

Abstract Cost of large Bridges.

Name of River, &c.	Position, Mile.	Openings.		Height of underside of girders above flood level river bed, and above underside of footings.	Estimated Cost in Rupees.			Remarks
		Number.	Clear Span.		Piers and Abutments, including Foundations.	Superstructure without Rails and Sleepers.	Total.	

FORM G.

List of Stations.

Name.	Class.	Position, Mile.	Distance apart.		On what Gradient.	On what Curve.	Total Cost.	Remarks.
			Station to Station.	Of Engine Stations.				
		Average ...				Total ...		

FORM H.

List of Station Machinery, &c.

Name of Station.	Number required.														
	Iron Tanks.	Pumps.	Water-cranes.	Hydrants.	Points.	Crossings.	Station Signals.	Distant Signals.	Traversers.	Carriage Turn-tables.	Engine Turn-tables.	Weigh-bridges.	Weighing Machines.	Cranes.	Dating Presses.
Total number ...															
Average number per 100 miles of Railway.															

FORM I.

List of Station Buildings.

Name of Station.	Passenger Building.		Goods Shed.			Engine Sheds.			Pointsmen's huts.		Latrines.	
	Number of units.	Area in squares.	Length.	Breadth.	Area.	Length.	Breadth.	Area, squares.	No.	Area.	Number of units.	Area.
Total...												
Average per 100 miles of Railway.												

FORM J.

List of Staff Quarters.

Name of Stations.	1st-class Houses.		European Quarters.		Clerks' Quarters.		Native Quarters.		Out buildings.		Latrines.	
	No. of Units.	Area, Squares.	No. of Units.	Area, Squares.	No. of Units.	Area, Squares.	No. of Units.	Area, Squares.	No. of Units.	Area, Squares.	No. of Units.	Area, Squares.
Total ...												
Average per 100 miles of Railway ...												
Average cost per square of building ...												

FORM K.

List of Level Crossings.

	Description of Level Crossing.	Number.	Average No. per 100 Miles.	Remarks.
A.	With gates closing across the Railway, and with huts			
B.	With gates not closing across the Railway, but with huts			
C.	Level crossings without huts			

FORM L.

_______________ Railway.

Cost of Railway.

Head or Sub-head of Account.	Estimated amount.	Expenditure to date.	To be expended.	Remarks.
Preliminary Expenses	RS.	RS.	RS.	
Land				
Earthwork, &c.				
Minor Bridges and Culverts				
Large Bridges				
Tunnels				
Level Crossings, &c.				
Fencing				
Ballast				
Sleepers				
Rails and Fastenings, &c....				
Stations				
Workshops				
Staff Quarters				
Station Machinery				
Telegraph				
Plant				
Rolling Stock				
Maintenance				
Establishment				
Contingencies				
Suspense Accounts				
Total ...				

No. 592. ORDER THEREON, 26th November 1875, No. 3,379.

RAILWAY, No. 67.

COMMUNICATED to the Consulting Engineer for Railways for information.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 593. Read the following endorsement of the Chief Engineer for Irrigation, dated Danaincheroovoo, 16th November 1875, No. 1,358:—

From J. D. GRANT, Esq., Officiating District Engineer, Tinnevelly, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, dated Camp at Ambasamudram, 6th November 1875, No. 99.

I HAVE the honor to forward, for sanction, an estimate of Rupees 170 for constructing an apron to the surplus weir of Marathony Periakulam Tank in Sunkerninarcovil Taluq. More than one year's revenue having been spent on the tank in the last five years, this estimate cannot be sanctioned locally.

1 Estimate.
1 Plan.

2. From the plan it will be seen that the scour through the vents has dangerously scooped out the soft rock in rear of the weir and that protection is necessary.

3. The estimate provides for filling in the hollow with earth and rough stone, and laying over that a rough stone apron 1 foot 6 inches thick with a rear retaining wall.

SUBMITTED to Government.

2. The filling in under the aprons should consist of small stone or clean gravel rather than earth. The outer apron had better extend to the ends of the rear wing returns, unless the rock on which the latter is founded be harder than that which has been washed away.

3. No provision appears to have been made in the estimate for the rough (dry) stone apron beyond the retaining wall. Its width is $7\frac{1}{2}$ feet and the length about $67\frac{1}{2}$, say 22 yards. The cost will be $23 \times 22\frac{1}{2} \times \frac{1}{2}$ at $1\frac{1}{2}$ Rupees, say, with sundries, 50 Rupees, making the total 220 Rupees.

(Signed) JOHN MULLINS, Lieut.-Colonel, R.E.,
Chief Engineer for Irrigation.

No. 594. ORDER THEREON, 26th November 1875, No. 3,380.

IRRIGATION, No. 56.
Account.

THE estimate of Rupees 220 for repairing the escape of the Marathony large tank is sanctioned.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 595. Read the following letter from W. C. FURNIVALL, Esq., Under Secretary to the Government of India, Public Works Department (Railway), to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department (Railway), dated Fort William, 18th November 1875, No. 2,770 R. :—

I AM directed to acknowledge the receipt of your letter, No. 2,898, dated the 11th October 1875, and in reply to convey the confirmation by the Government of India of the Proceedings of the Madras Government, approving of the action taken by the Consulting Engineer for Railways, Madras, in having authorized the transmission to England, for compliance by the Directors of the Madras Railway Company, of an indent for stores required for the Locomotive Department at an approximate cost of Rupees 54,525.

2. This sanction has been registered as No. 30 M.R. of 1875-76, and the indent is herewith returned.

No. 596. ORDER THEREON, 26th November 1875, No. 3,381.

RAILWAY, No. 68.

COMMUNICATED to the Consulting Engineer for Railways with reference to G.O., No. 2,897, dated 11th October 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 597. Read the following endorsement of the Consulting Engineer for Railways, dated Madras, 22nd November 1875, No. 633 :—

MADRAS RAILWAY.

Report of Fatal Accident on the 1st Division, South-West Line, Branch.

Collectorate.—Madras. *Railway District, Section and Mile.*—1st Division, South-West Line, Section No. 1, 5 miles, 14 telegraph posts. *Between what two Stations, and name of nearest Village, Bridge, and Station.*—Perambore and Avady Stations, Coonoor Village, single 6 feet Railway girder at 5 miles 12 telegraph posts, Perambore. *Whether at a level crossing or not.*—Not at level crossing. *Date of the Accident.*—17th October 1875. *Nature of Accident.*—Both legs crushed. *Circumstances which caused the Accident.*—While helping to propel a loaded material truck deceased slipped and fell. The wheels of the truck passed over both his legs. *Nature of assistance afforded.*—Immediately conveyed to General Hospital. He died there on the 18th instant. *Name, age, caste, and occupation.*—M. Chellappa Naicker, 45 years of age. Vunneah caste, gang cooly. *Gratuity proposed to be given to family of deceased cooly or not, and, if so, how much.*—In abeyance. Pending inquiry. *Whether reported to the Police authorities, and verdict of inquest (if any).*—Nil. *Remarks by the Company's Officers.*—Nil.

MADRAS RAILWAY,
21st October 1875.

(Signed) G. A. F. FRENCH,
Resident Engineer.
(„) B. ANDERSON,
Chief Engineer

Remarks by the Consulting Engineer.—The verdict given at the inquest held upon the body of the deceased was that he was "accidentally run over by a truck."

(Signed) J. H. M. SHAW-STEWART, Lt.-Col., R.E.,
Consulting Engineer for Railways.

To the Consulting Engineer for Railways for information.

(Signed) J. W. MELLIS,
for *Agent and Manager.*

SUBMITTED for the information of Government.

2. Sanction to the payment of a gratuity of Rupees 30 to the family of the deceased gang cooly has been accorded. The amount will be charged to Schedule G., Revenue.

(Signed) J. H. M. SHAW-STEWART, Lt.-Col., R.E.,
Consulting Engineer for Railways.

No. 598. ORDER THEREON, 27th November 1875, No. 3,382.

RAILWAY, No. 68-A.

RECORDED. The payment of the gratuity is approved.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 599. Read the following letter from Lieutenant-Colonel J. F. FISCHER, R.E., District Engineer of Madura, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madura, 20th November 1875, No. 3,379 :—

I HAVE the honor to bring to your notice that travelling allowance at the rate of Rupees 2 per diem, which was sanctioned in G.O., No. 861, of 1st April last, to late Taluq Overseer Subraya Iyer, was passed by this office to Taluq Overseer Chinnasamy Pillay, who has been under the authority of G.O., No. 2,057, of 20th July 1875, acting as sub-division officer in the room of the former.

2. The Controller in his letter No. 84 M.D., of 13th instant, has stated that Government orders above quoted make no special reference to the increased rate of travelling allowance, and as the orders* of Government under which deputation allowance is granted to Taluq Overseers make no mention of the grant of extra travelling allowance in addition thereto, he is unable to admit the claim made in behalf of Taluq Overseer Chinnasamy Pillay.

* G.O., No. 3,358, of 16th December 1874.
„ No. 470, of 17th February 1875.

3. The Pillay has as much travelling as was represented in my letter recorded in G.O., No. 861, of 1st April 1875, that Soobraya Iyer would have, and his expenses will be as great as any upper subordinate would have to incur if in charge of two taluqs.

4. Under these circumstances I have the honor to request that the travelling allowance of Rupees 2 per diem be passed to the sub-division officer, as it appears to me this was intended by G.O., of the 1st April 1875, No. 861.

No. 600. ORDER THEREON, 27th November 1875, No. 3,383.

ESTABLISHMENT, No. 39.

THE Overseer can only draw the travelling allowance of his grade in addition to the deputation allowance for charge of a sub-division.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 601. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 17th November 1875, No. 627 :—

WITH reference to the Proceedings of Government, No. 138, dated 28th October 1875, I have the honor to request that I may be informed whether paragraph 4 of Financial Department Resolution of the Government of India is intended to apply to officers in the Medical Department.

2. The last clause in that paragraph does not seem to include them.

No. 602. ORDER THEREON, 27th November 1875, No. 3,384.

RAILWAY, No. 69.

THE Governor in Council does not consider that the prohibition applies to officers of the Medical Department, the Government of India being aware of the arrangements under which Medical Officers perform duties connected with the Railways in this Presidency.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 603. Read the following Proceedings of the Government of India in the Public Works Department (Railway), dated Fort William, 12th November 1875, No. 2,722-37 R. :—

Feeder Roads and Roads of Access to Railway Stations.

Read again—

Public Works Department Resolution, No. 1,514-37 S.—R., of 21st October 1873, to Departments of the Government of India, Local Governments and Administrations, and Engineers in charge of State Railways.

To Government of Bombay, No. 556 G.—R., dated 13th March 1874.

To Chief Commissioner, Central Provinces, No. 557 G.—R., dated 13th March 1874.

To Director of State Railways, No. 1,415 R., dated 23rd June 1874.

To Governments of Madras and Bombay and the Consulting Engineers at Calcutta, Lahore and Lucknow, Nos. 3,242-46 R., dated 22nd December 1874.

Public Works Department Resolution, Nos. 357-8 R., dated 9th February 1875, to the Government of North-Western Provinces and the Chief Commissioner of Oudh.

Read also—

From Government of Bombay, No. 1,721 and No. 10, dated 17th December 1874, and 4th January 1875, respectively.
From Government, North-Western Provinces, No. 518 B—R., dated 15th March 1875.
From Director of State Railways, No. 468 W., 16th March 1875.
From Government, North-Western Provinces, No. 93 R., dated 17th March 1875.
From Chief Commissioner, Central Provinces, No. 2,434, dated 1st April 1875.
From Consulting Engineer at Lahore, No. 629, dated 7th June 1875.
From ditto at Calcutta, No. 1,620, dated 18th June 1875.
From ditto at Lucknow, No. 1,536, dated 2nd July 1875.
From ditto at Calcutta, No. 2,515, dated 18th September 1875.

OBSERVATIONS.—In 1873 the principle was laid down, that, while the Supreme Government would take on itself the responsibility for the provision of trunk systems of railway throughout India, the provision of feeder roads was left to Local Governments and Administrations. It was added that "it will no doubt be recognized by the Local Governments that their funds available for expenditure on the construction of roads cannot, in parts of the country bordering on lines of railway, be better applied than by the formation of railway feeders. The completion of these minor works will bring the advantage of railway communication close to the homes of the people, and as no share of the cost of the railway itself will be borne provincially, His Excellency in Council believes that expenditure on such roads will afford a more effective and economical result than outlay in any other direction."

It was added that the Governor-General in Council trusted that the Rulers of Native States would follow the same course, and Political Officers were desired to draw the attention of the Native Princes to the subject.

2. Of late, representations have been made, both in England and in India, that the railways in this country are not sufficiently supplied with feeder roads. The Government of India therefore called for reports from Local Governments and Administrations and Officers concerned of the progress which is being made in meeting the alleged deficiency of roads communicating with railway stations.

3. The Government of Bombay promises a detailed report on the subject of feeder roads in that Presidency, when doubtless the matter will be fully considered.

4. As regards the Oudh and Rohilkhund Railway, the North-Western Provinces Government has replied that this important question will not be overlooked, and that orders have been given to construct a feeder road between Budaon and Aonlah. The Chief Commissioner of Oudh has submitted a statement showing that forty-nine roads are asked for by the Oudh and Rohilkhund Railway Company, or are otherwise considered necessary. These roads aggregate 261·75 miles, and the estimated total cost is Rupees 6,74,094. In the statement submitted it is pointed out that no less a sum than Rupees 3,82,331 is included for metalling existing roads, and this in many instances when the necessity is open to doubt. Rupees 80,650 for improvements to existing roads and Rupees 2,11,113 only for new roads are required.

It is added that the estimate is probably within the amount still required for roads, and is therefore allowed to stand as given by the Railway authorities; but that in several instances the lines proposed require reconsideration, and on detailed inquiry others of greater importance may have to be substituted, but that this inquiry

will be a work of time. The Government of India trust that the Oudh Administration will give the earliest possible effect to the improvement and construction of the roads enumerated with the local funds at its disposal.

5. The Director of State Railways has forwarded correspondence, together with maps, relating to feeder roads proposed to the Holkar and Neemuch State Railways. To the South of the River Nerbudda, the Deputy Commissioner of Nimar has indicated a few likely roads which may be required as feeders to the Holkar State Railway; but it is said that the country in that direction is so sparsely cultivated, that it would seem probable that any local or provincial development of feeder roads can be permitted to wait until the traffic to the different stations is more declared than at present. This conclusion is sound, provided that ordinary tracks fit for the wheeled traffic of the country are already in existence. But obviously some means of communication must be available in order to give the traffic to stations a chance of developing.

6. North of the Nerbudda the Holkar and Neemuch State Railways pass almost entirely through Native States. Speaking generally of these lines, it is stated that railway accommodation is afforded to all large towns and centres of trade in Western Malwa. A good road from Mhow is being made to Dhar, the only place of importance to the west of Mhow. The Agra and Bombay Road passes through Indore and Mhow, and there is also a fair road from Indore to Sehor and Bhopal. His Highness the Maharajah Holkar is also now making a fair weather road from Indore westwards to Dypalpur. A road from Oojein to Augur is also going to be made, and a branch from this to the Cantonment of Mahidpur, the Director says, may also be found advisable.

7. The Director adds that some roads leading to Rutlam, Jowra, Mundisore and Neemuch, all in Native States, will doubtless be required, and that the Agent to the Governor-General for Central India is about to make some definite proposals.

8. The Chief Commissioner, Central Provinces, hopes to arrange gradually for the construction of the following feeder roads in connection with the Wardha Valley and Holkar State Railways, commencing from 1876-77. Should it, however, be possible, Mr. Morris says, a supplementary grant for some of the roads will be made during the current year :—

List of proposed Feeder Roads to the Wardha Valley State Railway.

(1) Road to Sonegaon from the Wardha Valley road.
(2) ,, to Kawarghat.
(3) ,, from Edulabad to Warrora.
(4) ,, from Mul to Chanda.
(5) ,, from Dhaba to Chanda.
(6) ,, from Warnaira to Sonaigaon.
(7) ,, from Simoor to Hingunghat or Warrora.

List of proposed Feeder Roads to the Holkar State Railway.

(1) Road from Sanawad to Mandhata.
(2) ,, ,, ,, to Khanapore.
(3) ,, ,, ,, to Sulgaum.
(4) ,, ,, ,, to Kheri.
(5) ,, ,, Kheri to Suktapore.
(6) ,, ,, ,, to Atud.
(7) ,, ,, ,, to Dhangaon.
(8) ,, ,, Atar to Dharwar.
(9) ,, ,, Sulgaum to Onkar Mandhata.

The Government of India are gratified to hear of these good prospects of the provision of feeder roads both as regards the northern portion of the Holkar State Railway, of the extension to Neemuch, and of the State Railways in the Central Provinces, and they trust that an early commencement will be made of some of the roads mentioned.

9. The Consulting Engineer at Lahore reports that the existing means of access to the stations on the Scinde, Punjab and Delhi Railway from the nearest public roads are sufficient for all purposes. In regard to feeder roads, the following remarks are made in connection with three railway stations in the North-Western Provinces, to which the Government of India invite the attention of that Government:—

(1.)—*Sirsawah*—

> "The only road leading to this station which in the opinion of the Civil Officers requires improvement is the one between Sirsawah and Chilkana. It is a kutcha road like the others, but the Collector recommends that it be metalled."

(2.)—*Saharunpore*—

> "The road to Dehra is metalled, but the others are unmetalled. The Collector considers that the road to Kurralee *viâ* Gungoh, which is an important one, should be metalled throughout. A portion of it has recently been metalled on the recommendation of the district authorities. The roads of access are deemed sufficient for the purpose."

(3.)—*Deobund*—

> "The existing roads are from Munglour, Bijnour, and Saharunpore. These are good district roads and are considered sufficient for the traffic. The station is connected to the Grand Trunk Road by a metalled approach, and the district roads all lead across this Grand Trunk Road. Should the branch line from Rohilkhund to Roorkee not be constructed, the Collector recommends that the road leading across the Kalee Nuddee to Roorkee be raised and bridged, and the road connecting Roorkee and Nujeebabad in the Bijnour district be completed. At present this latter road exists only as far as Looksir, 13 miles from Roorkee."

In addition however to these, there is little doubt that very much remains to be done to improve the feeder roads in connection with the railway stations on the Scinde, Punjab and Delhi Railway, and this subject is commended to the continued and earnest attention of the Government of the Punjab and of the authorities in Scinde under the orders of the Government of Bombay.

10. The information obtained with regard to feeder roads to the East Indian Railway has been tabulated and will be found attached to this Resolution. The attention of the Governments of Bengal and of the North-Western Provinces is invited to the remarks made by the Railway Company's officers.

11. With reference to the Eastern Bengal Railway, a report is being prepared, which will form the subject of a subsequent resolution.

12. The Government of Madras has submitted a list of the feeder roads required for the Madras Railway, and adds that the list has been transmitted to the Local

Fund Boards, in whom is vested the responsibility for the construction and maintenance of such roads. A similar list is promised for the South Indian Railway.

13. In conclusion, the Government of India would urge on the Local Governments and Administrations, and upon the Rulers of Native States, the utmost possible efforts in respect to feeder roads. It is known that throughout India, except on certain great highways, the means of communication are of the rudest and most primitive kind, suited in a certain degree to the wants of an agricultural and pastoral community, but very inadequate to assist materially in giving a full impulse to traffic and the exchange of commodities, which it is a main object of railways to foster. It is also known that throughout the vast area of country through which the trunk lines of railway pass it is impossible at once, or even within a moderately short space of time, to complete a perfect system of metalled and bridged roads. But a commencement should be made from railway stations as nuclei by devoting the funds at disposal in laying out roads which shall be fairly traversable in all weathers to the nearest large villages and small towns, not attempting too much in the first instance. It is suggested that in appropriating Provincial Funds more should be devoted to roads and less to civil buildings.

In cases where water communication can be made available or extended, that important means of transport should be also carefully considered in connection with railways and feeder roads.

Order.—Ordered, that this Resolution be communicated to the Governments of Madras and Bombay, to the Chief Commissioners of Oudh and the Central Provinces, and the Agent to the Governor-General for Central India, and to the Consulting Engineers at Calcutta and Lucknow, for information and such action as seems required; also to the Governments of Bengal and the North-Western Provinces for the same purpose, with copies of the tabulated statement referred to in paragraph 10.

Also to the Government of the Punjab, the Chief Commissioner, British Burmah, the Resident at Hyderabad, the Agent to the Governor-General for Rajpootana, the Consulting Engineer at Lahore, and the Director of State Railways, for information.

Also to the Home Department for publication in the Supplement to the *Gazette of India.*

(Signed) C. H. DICKENS, Colonel, R.A.,
Secretary to the Govt. of India.

No. 604. Order thereon, 27th November 1875, No. 3,385.

RAILWAY, No. 69-A.

Communicated to the Financial Department and to the Consulting Engineer for Railways with reference to G.O., No. 2,601, dated 10th September 1875. It is observed that the information called for in these orders from Local Fund Boards through the Financial Department is still awaited, as well as the statement of roads required by the South Indian Railway.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 605. Read the following Proceedings of the Government of India in the Public Works Department, (Account—Guaranteed Railways,) dated Fort William, 17th November 1875, No. 329—35 A—G. R. :—

Rate of interest to be allowed on the special funds of Guaranteed Railway Companies.

Read again—

Public Works Department Resolution, Nos. 440—5 A.—G. R., dated 29th August 1873.
Endorsement by Financial Department, No. 2,572, dated 27th August 1873.
Public Works Department Resolution, Nos. 113—18 A.—G. R., dated 9th March 1874.
Public Works Department Resolution, No. 315 A.—G. R., dated 17th June 1874.

Read also—

Letter from the Government of Madras, No. 2,243, dated 4th August 1875.

Read further—

RESOLUTION,—By the Government of India, Financial Department, dated 14th October 1875, No. 4,071.

Read again Financial Resolution, No. 1,258, dated 30th June 1873, deciding that in future the Savings Bank rate of interest shall be allowed on all monies deposited by the Railway Companies in the Government Treasuries on other than Revenue Account.

Read again Financial Order, No. 2,449, dated 23rd August 1873, ruling that interest shall be paid on Railway special funds deposited in Government Treasuries according to the Savings Bank rule, *viz.*, on the minimum monthly balance, excluding from the calculation all deposits made after the 3rd of the month.

Financial Resolution, No. 1,194, dated 23rd February 1874, modifying the above rule so far as to allow deposits made within the first four working days of the month to count for interest in that month.

Financial Resolution, No. 3,210, dated 29th May 1874, authorizing the grant of 4 per cent. interest with retrospective effect on special fund balances of the Great Indian Peninsula Railway deposited in the Government Treasury.

Letter from the Government of Madras to the address of the Secretary in the Public Works Department, No. 2,243, dated 4th August 1875, forwarding for orders an application for extending to the Madras Railway Company the concession made to the Great Indian Peninsula Railway Company in respect of interest on their special fund balances.

RESOLUTION.—The Governor-General in Council observes that the concession was made to the Great Indian Peninsula Railway Company for special reasons which do not now exist, and that it is inexpedient to continue any longer the high rate of interest paid on the special fund balances of this Company. His Excellency in Council is accordingly pleased to cancel the order of 29th May 1874 with effect from the 1st January 1876, and to rule that from that date more than the Savings Bank rate of interest shall not be allowed on any Railway special funds deposited in Government Treasuries, and that this rate of interest shall be allowed only on the condition that the funds are operated upon solely for current purposes.

2. Should this arrangement not be agreeable to the Railway Companies, and should they prefer to withdraw these balances from the Government Treasuries for investment in Government Securities, the Governor-General in Council will have no objection to their doing so, provided timely notice is given of such intention.

ORDER.—Ordered, that the foregoing Resolution be communicated to the Public Works Department* for information and for such further orders as may be deemed necessary in that Department.

* Original papers returned.

Ordered also, that a copy of this Resolution be forwarded to the Comptroller General for information and communication to the Accountants-General concerned.

ORDER.—Ordered, that the above Resolution of the Financial Department of the Government of India be communicated to the Local Governments and Officers marginally noted, for information and guidance.

Governments of Madras and Bombay.
Consulting Engineers for Guaranteed Railways, Calcutta, Lahore and Lucknow.
Accountant-General, Public Works Department.

Ordered also, that a copy be sent to the Financial Department for information.

(Signed) C. H. DICKENS, Colonel, R.A.,
Secy to the Govt. of India.

No. 606. ORDER THEREON, 27th November 1875, No. 3,386.

RAILWAY, No. 70.

COMMUNICATED to the Consulting Engineer for Railways for information and guidance with reference to G.O., No. 2,242, dated 4th August 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 607. Read the following endorsement of the Consulting Engineer for Railways, dated Madras, 23rd November 1875, No. 635:—

From L. S. MOSS, Esq., Deputy Traffic Manager, to R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, dated Madras, 20th November 1875, No. C59,141—11,978.

Death of a passenger at Arconum.

I BEG to report, for your information, that a passenger who travelled from Tirupetty to Arconum by the 6 A.M. train of the 11th November 1875, on arrival at the latter station was removed into the waiting-room as he was reported to be suffering from fever. He died on the morning of the 12th instant.

2. His body was handed over to the Police for inquest, and a copy of the verdict is herewith attached.

Name, unknown. *Age*, about 35. *Caste*, Canuken. *Occupation*, Native Doctor. *Disease*, fever, and pain in stomach.

MAHAZER tendered by the undersigned and marked persons before Margasaha Moodelly, Village Magistrate of Arconum, and Police Station Serjeant, and others of the said place attached to Wallajah Taluq in Chittoor District.

We examined a male corpse lying on the ground of Chengen Pattan of Nagalapuram, having the head on the south and legs on the north, on the east of the Government Chuttrum. There are no marks or wounds on the body of the deceased. The deceased man got down from the train which came from Tirupetty to Arconum at 7 A.M. on the 11th; was attacked with serious ague and belly-ache; was suffering from the effects of the diseases till 4 A.M., and died in the room where tickets are granted. The circumstance was reported to us by Police Constables, Nos. 461 and 113, and by porters. He was removed, and inquiry was instituted, and it is not known what caste, country, or name of the deceased. The deceased would be about 35 years old.

From the nature and condition of his body we understand that he must have died from fever. We Jurors are all of opinion that he did not die from any other cause. We have thus executed this Mahazernamah.

Distinguishing characteristics of a deceased individual lying in the Chengen Pattan ground of Nagalapuram, east of Government Choultry at Arconum, 12th November 1875 :—

Name, unknown. *Country*, unknown. *Age*, about 35. *Caste*, unknown. *Color*, brown. Long face. Has hairs in the head, and beard. *Height*, 5 feet 3 inches. *Width of breast*, 29 inches.

Description of Property.

2 Upper cloths, colored borders.	1 Powders, &c.
1 Dyed upper cloth.	4 Flower of velly yerukul.
23 Sacred beads in red thread.	1 Coin, brass.
31 Small do. do.	1 Copper coin, half anna } 1 Anna.
14 Beads in white thread.	2 Copper pieces of quarter anna }
1 Tin snuff-box.	1 Red thread.
2 Blacklead pencils.	1 Silver piece.
2 Tamil cadjan books.	7 Packet of pills.
13 Cigars.	3 Spare beads.
1 Powder.	1 Iron pen.
2 Tobaccos.	1 Small box of copper.
20 Pieces of rool of velly yerukul.	1 Bag of ashes.
1 Bundle of ashes of corpse.	3 Papers containing chukrums or lines.
1 Chalk.	

A bag containing all these, nothing but these, were found.

(Signed) ANNAMALY VATHIAR, (Rice Merchant.)
(„) VEERASAWMY MOODELLY, (of Cottumdy.)
(„) V. SAWMYNATHA.
(„) MOOROOGAPPA CHETTY.
(„) MOONESAWMY, (Oilman.)
(„) COMARASAWMY, (Madras.)
(„) CHINNAN.
(„) SAVAGAN, (of Nagalapuram.)
(„) THOTTY KUNTHEN,
(„) TALIARY VEERASAWMY.
(„) (Name illegible,) (Head Constable.)

No. 1,170.

To the Consulting Engineer for Railways for information.

MADRAS,
22*nd November* 1875.

(Signed) R. B. ELWIN,
Agent and Manager.

SUBMITTED for the information of Government.

(Signed) J. H. M. SHAW-STEWART, Lieut.-Col., R.E.,
Consulting Engineer for Railways.

No. 608. ORDER THEREON, 27th November 1875, No. 3,387.

RAILWAY, No. 71.

RECORDED and communicated to the Judicial Department.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 609. Read the following letter from Lieutenant-Colonel J. F. FISCHER, R.E., District Engineer, Madura, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Camp at Chut-traputty, 11th November 1875, No. 3,244 :—

IN reference to paragraph 2 of G.O., of the 27th October 1875, No. 3,024, I have the honor to observe that if 1 square mile of drainage area is not capable of irrigating 84 acres of land, it is quite unnecessary to be providing escape weirs on the scale at present proposed. In the Nagpore water works Mr. Binnie has proved that a square mile of ordinary undulating plain country can yield water enough for the irrigation of from 250 to 300 acres of land for one crop, and it is quite evident that if our tanks really require the waste weirs to be of the dimensions proposed for them, we are taking the most effectual measures to waste the water as much as possible, instead of increasing the capacities of our reservoirs to hold as much water as possible either for extending cultivation or for tiding over unfavorable seasons with. In Bellary, when I found the capacity of a tank could be economically increased at a moderate expense the work was done at once, and the result was that in five or six years the area of cultivation had increased from 80,000 acres to 166,000 acres, that is between the years 1857-58 and 1862-63. I see however that the cultivation has since fallen off, and this should perhaps be looked into.

2. In this district it is impossible to increase the capacities of the tanks in any economical manner, owing to the physical configuration of the country; I have therefore selected the best sites I could find for large reservoirs on all the main rivers of the district in which an abundant store of water can be retained for the use of the cultivators, and this is the course I would respectfully submit for adoption by the Government as the one which is most likely to yield the best results for the district and its revenue.

No. 610. ORDER THEREON, 27th November 1875, No. 3,388.

IRRIGATION, No. 57.

THE District Engineer will transmit any definite information he possesses relative to the actual area of irrigation under rainfed tanks, the extent of the catchment basins of which is known, to the Chief Engineer for Irrigation.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 611. Read the following letter from Major H. R. MEAD, R.E., District Engineer, South Arcot, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation and Joint Secretary to Government, Public Works Department, dated Camp at Cuddalore, 12th November 1875, No. 161 :—

FROM the current year's grant of Rupees 300, under Tools and Plant, Repairs and Carriage, Rupees 273 have been already spent, and the balance, Rupees 27, is not sufficient to meet the demands for repairs to scientific instruments, &c., during the remainder of the year.

2. I have therefore the honor to request sanction to a transfer of Rupees 150 from the grant for "New Supplies" to supplement that for "Repairs and Carriage."

No. 612. ORDER THEREON, 27th November 1875, No. 3,389.

IRRIGATION, No. 58.
Account.

RUPEES 150 under Tools and Plant, Capital, will be transferred to the balance at the disposal of Government, and a like sum will be placed at the District Engineer's disposal from the balance at disposal of Government under Revenue.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following papers :—

No. 613. From Major J. BEATTY, R.E., Acting Superintending Engineer, Godavery District, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, dated Dowlaishweram, 29th October 1875, No. 2,240.

1 Report by Lieutenant Dorward.
6 Statements marked A to F.

I HAVE the honor to send you, herewith, six statements showing the additional information collected up to date from cement* experiments at Dowlaishweram; also a letter from the Assistant Engineer in charge of the Western Delta bringing to notice his experience in the use of surki, and the difficulties in the way of its general use from the want of some good means of reducing the burnt cakes to a fine powder.

* *Vide* G.O., No. 174, of 21st January 1875.

2. The statement marked A was prepared with a view to showing the effect of burning the different limestones found in the Kátér quarries, from which the Dowlaishweram kilns are supplied separately and together; and, secondly, whether any advantage would be gained by breaking up the limestone to a smaller size than has been customary hitherto, *viz.*, the $2\frac{1}{2}$ inch size. The same quantity of firewood and limestone was used in each case, and it will be observed that the crystalline limestone produces the largest quantity of hydrate of lime at the first burning. It is also best to break up the limestone into pieces, the size which will pass through a ring of $2\frac{1}{2}$ inches diameter, in preference to breaking it smaller or leaving it unbroken in lumps as brought out of the quarry.

3. The statement marked B shows the cost of preparing burnt clay in cakes and grinding them by the two machines hitherto tried, and it is found that Wells' patent mill is of very little use. The explanation is, I suppose, that surki in Northern India is used instead of sand, and that the mill was intended to produce a powder resembling Godavery sand, and not to reduce the burnt cakes to the consistency of the finest flour. I wrote to Mr. Wells on the subject, but have had no reply. The Upper Godavery mortar-mixing machine is the best means of grinding yet tried. The clay now used is Godavery silt taken from a channel where there is no current and a great deposit. It is taken a few inches below the surface. Soil from a tank bed was also tried, but with much the same result.

4. Statement C* shows, first, the result of making brickets of common mortar; and, secondly, of making them with cement and different admixtures of fine and coarse sand.

* *Vide* postscript.

5. Statement D shows the cost of concrete blocks made of lime, sand, and small stone. This statement was framed by Mr. Chancellor from information on record in the range office, being the results of experiments made here some years ago, when the price of lime was considerably greater than at present. Within the last year the price has been reduced by the exertions of the Anicut Superintendent to 10 Rupees a garce of 60 parahs, and is now delivered at that rate at Dowlaishweram.

6. Statement E shows the probable cost of the best Dowlaishweram cement; composed of two parts of lime to three of fine surki, ground by our Upper Godavery mortar-mixing machine.

7. Statement F shows the probable cost of concrete blocks made of cement, sand, and small stone. Such blocks may hereafter be useful, but the quarries are still yielding an abundant supply of stone, which must be better than any concrete; blocks might, however, be used for copings instead of cutstone, as was done in the Upper Godavery.

8. The experiments are still, I regret to find, incomplete, but I have thought it best to record at once the progress made and to state what I consider still wanting.

9. More experiments are wanted in the mixtures of the two kinds of cement with different proportions of sand before we can finally decide on the best mixture of each kind for different kinds of work; (2) as some additional strength is gained by making the cakes with lime and raw clay and then burning and grinding them, while this method will doubtless also be the cheapest, because the mixture of lime in the cakes will render pulverization easier, experiments are needed to ascertain the cost of the cement when ready for use by this method; (3) experiments should also be made on the strength of concrete blocks composed of *cement*, sand, and small stone; and (4) it will be well to ascertain whether surki deteriorates materially by keeping for a month or so.

10. I may mention that the difficulty pointed out by Lieutenant Dorward, *viz.*, the want of a better means of grinding does not appear to have been felt by Colonel Haig on the Upper Godavery, where cement was always used, and the masonry is probably among the best of its kind to be found anywhere; the Inspector-General of Irrigation said he had not seen better in India.

11. The method adopted in the manufacture of cement on those works was as follows:—

I.—The limestone was broken into pieces small enough to pass through a ring 3 inches in diameter.

II.—It was then burnt slowly in a kiln.

III.—It was next slaked and sifted.

IV.—The lime after sifting was mixed with black clay in the proportion of one to one, and then well ground in a mill, *i.e.*, in one of the Upper Godavery mortar-mixing machines, driven by a portable steam engine. All the mortar-mixing machines at the Upper Godavery works were driven by steam-power.

V.—The mixture of lime and clay was then made into rough round cakes about 7 inches in diameter by $1\frac{1}{2}$ inches thick, and the cakes were spread out on the ground to dry. When well dried they were stored in a large shed until required for use. The cakes had of course to be burnt in order to make cement, but, as the cement deteriorated by keeping, the cakes were not burnt until the cement was required for use.

VI.—When the cement was required, the cakes were put into a kiln (a cylindrical kiln of the ordinary pattern) except that the interior diameter

was 16 feet and the height 8 feet. The kiln was packed with cakes and firewood in alternate layers.* One layer of wood, small, to one layer of cakes of the same thickness.

* Each 10 inches thick.

VII.—The kiln was then lighted at bottom and allowed to burn itself out. If properly burnt the cement was of a reddish pink color; if half burnt, grey; if unburnt, dark, bordering on black. Only what was of the proper color was sent to the works.

VIII.—The cement, thus prepared and freshly burnt, was mixed with an equal quantity of clean sharp river sand, and the mixture well ground in the mortar-mixing machine; *this* machine was close to the site of the work on which the cement was to be used.

IX.—The masonry was kept constantly moist during the day, by frequent waterings, for about *one month* after it was built.

X.—The refuse of the siftings made excellent cement, but grinding it was found to be very destructive to the mills.

XI.—The weight of the cement thus made was—

1.	Pure cement	106·66 lbs. per C. ft.
2.	When mixed with sand (one to one)	117·33 lbs. per C. ft.
3.	Cement in powder	54 lbs. per C. ft.

12. But it must be explained that there are no small works at Dumagudiem. The masonry works there are only four in number and of great size—(1) an anicut a mile long with long wings that rise 34 feet above the level of the anicut crest; (2) a set of fourteen scouring sluices in a body wall 224 feet long by 36 feet high, with wings each $143\frac{1}{2}$ feet long by 42 feet high; (3) a head lock 30 feet broad by 200 feet long with flood gates $38\frac{1}{2}$ feet high; and (4) a double lock having chambers of the same dimensions as the head lock and gates 20 feet high.

13. For our Delta works it will probably be found best to make surki, *as well as* the dried cakes of lime and raw clay, in large quantities *at the head-quarters of the range*, issuing surki for use on small works only, and grinding up the cakes on large works by a mixing machine as was done at Dumagudiem; at least until some better means of grinding is invented.

P.S.—Throughout the experiments shown in statement C, brickets of each mixture were tested in three different ways; first by sun-drying; secondly by air-drying in shade; thirdly by immediate immersion. Where no results are recorded, it is to be understood that the brickets cracked at their weakest part before being tested; this was the case with *all* the air-dried brickets.

From Lieutenant A. R. F. DORWARD, R.E., Assistant Engineer, in charge No. 3 Range, Godavery District, to Major J. BEATTY, R.E., Acting Superintending Engineer, Godavery District, dated Godavery, 4th September 1875, No. 259.

I HAVE the honor to bring to your notice the subject of using surki in mortar for masonry works. The cost in this range for surki is generally—

Coarsely ground surki	Rupees 15 per garce.
Very finely „	„ 25 „ „

Even coarsely ground surki is therefore more expensive than lime. When lately in Dowlaishweram Captain Brockman informed me that he could not by any means known to him produce surki at a cheaper rate than Rupees 15 per garce. He also told me that for this rate he could only produce coarsely ground surki; so the rates in the two ranges are similar.

2. There are two great drawbacks to the extensive use of surki,—first its cost; second the great length of time which it takes to turn it out in any quantity.

The coarsely ground surki is much inferior to the finely ground, and adds very little to the strength of the mortar; I have, therefore, quite given up using it. The very finely ground surki, however, is used extensively. I have tried various mixtures and lately have used a mortar of 1 lime, $1\frac{1}{2}$ surki and 6 sand for small brickworks, and am well satisfied with it. The cost of this

mortar, as compared with that previously used in the range, *viz.*, 1 lime to 2 sand, is as 5 to 6; owing, however, to the slowness of the manufacture of surki, the cost of supervision is increased. In Koder lock walls a mortar of 1 lime, 1½ surki and 3 sand has been used, and with excellent results as far as strength of work goes. It is more expensive, however, than the ordinary lime mortar, and its use has delayed the work; in fact, the progress of a work is now regulated by the supply of surki.

3. To cheapen the mortar I have in some cases reduced the quantity of surki, but found that while a cement of 1 lime and 1 surki was nearly as strong as 1 of 1 lime and 1½ surki, the former was weakened much more than the latter by admixture with sand. I have only the roughest means of testing strength; but I believe, if tried with the machine at Dowlaishweram, this will be found to be the case, and if so it will show that sand is not a mere diluent. I am also nearly certain that a mortar of 1 lime and 1 sand is stronger than one of pure lime; a few experiments at Dowlaishweram would settle this point, and, if this be found to be the case, I do not think that it can be accounted for by mere mechanical action.

4. I believe surki is extensively used in upper India, and I should be obliged if you could get me a description of their method of preparing it, with the cost. I think a cheap way to manufacture it would be by a water wheel working hammers; it would be a very convenient power to work at Chettipett, where there is a considerable head of water available. I have not sufficient time to work out the details of such a machine, as having no practical experience of water motors, I could only gain knowledge by failure. I think the difficulties that stand in the way of the general use of surki should be brought to the notice of the Chief Engineer for Irrigation. I propose using a mortar of 1 lime, 1½ surki, and 4 sand for the concrete in foundations of the works at Palkole. Such a mortar sets fairly fast and is amply strong.

5. As surki deteriorates by keeping I cannot make it long beforehand, and shall probably lose the advantage of decrease in cost of baling caused by its use, through delay in getting in the concrete.

6. I am anxiously awaiting the result of the Dowlaishweram experiments as to the best mortars to use for various descriptions of masonry work, and hope that you will soon be able to give me some positive information on the subject.

A.

Statement showing the Results of Experiments on burning different sorts of Limestone at Dowlaishweram Lime Kiln—11·664 Parahs equal 1 Cubic Yard.

—	Limestone in Parahs.	Fuel in Cubic Yards.	Lime in Parahs.	Unburnt Limestone in Cubic Yards.	Remarks.
Stone, large, without breaking...	35	6	*39	5/8	* These are the quantities found after slaking.
Stone, crystalline, 2½″ size† ...	35	6	52½	½	† The sizes here given are those which will pass through rings of 1½″ and 2½″ diameter.
Do., do., 1½″ size ...	35	6	42	1	After repeated burnings the Kátér limestone leaves no residuum, the second burning usually turns what was left at the first burning into lime.
Stone, semi-crystalline, 2½″ size...	35	6	45	¾	
Do., do., 1½″ „ ...	35	6	39½	¾	
Stone, non-crystalline, 2½″ „ ...	35	6	42	1	
Do., do., 1½″ „ ...	35	6	38	1⅛	

B.

Statement showing the rates for making Surki by different methods—11·664 *parahs make* 1 *Cubic Yard.*

Description.	Rate. RS. A. P.	Amount. RS. A. P.	Remarks.
*Quarry Channel Clay.**			* The clay is Godavery silt taken about 9 to 12 inches below the surface; the upper 9 inches being rejected as too sandy.
For digging and carrying 1 cubic yard of clay to experiment shed, about ¼ mile.	0 2 0		
For ¼ parah of chunam† to mix with the clay.	0 1 4		† About 2 per cent. of lime is added to reduce the cost of disintegration. In these experiments quick lime was used which would be about twice the price of the hydrate of lime.
For tempering and making cakes.	0 2 6		
Firewood	0 8 0		
Filling and emptying kiln ...	0 1 9		
Cost of 1 cubic yard of burnt clay in cakes.	...	0 15 7	
Grinding by Wells' patent mill...	...	‡3 1 6	‡ This rate includes six or seven siftings.
Total cost of 9 parahs well ground surki.‖	...	4 1 1	Or 7¼ Annas per parah. ‖ The kind of surki here meant is equal to the finest hand-made and may be blown into a cloud off the palm of one's hand, or like the finest flour.
Cost of 1 cubic yard of burnt clay in cakes.	...	0 15 7	
Grinding by the Upper Godavery mortar-mixing machine¶ worked by six men.	...	§1 15 6	¶ It is hoped that by applying steam power to this machine the cost may be reduced to 1½ or 2 Annas per parah. § This rate includes about three siftings.
Total cost of 9 parahs well ground surki.	...	2 15 1	Or 5¼ Annas per parah.

(Signed) J. BEATTY, Major, R.E.,
Acting Superintending Engineer, Godavery District.

C.

Experiments on Godavery Lime and Cements.

N.B.—In this statement where it is noted that the blocks were immersed "in water" it is to be understood that they were put in water immediately after they were manufactured, and tested immediately after removal from the water. The columns headed "number of experiments" show the number from which an average was taken. The numbers on the line marked "maximum" show the maximum strength obtained from any sample of that kind of bricket.

I.—*Four Sets of Experiments on the strength of Common Mortar.*

—	—	Days old.	Number of Experiments.	1 Lime and 1½ fine Sand.	Days old.	Number of Experiments.	1 Lime and 2 fine Sand.	Days old.	Number of Experiments.	1 Lime and 1½ coarse Sand.	Days old.	Number of Experiments.	1 Lime and 2 coarse Sand.	Remarks.
Averages ...	In water.	45	2	8	45	4	16	46	3	17	46	3	27¾	All the air-dried and sun-dried brickets of these mixtures were failures.
Maximum ..	Do. ...	45	..	10	45	...	20	46	...	22	46	...	29	

II.—*Seven Sets of Experiments on the strength of Cement made of Lime and Surki mixed, and the Cement so formed afterwards mixed with fine Sand.*

—	—	Days old.	Number of Experiments.	1 Cement and ½ fine Sand.	Days old.	Number of Experiments.	1 Cement and ¾ fine Sand.	Days old.	Number of Experiments.	1 Cement and 1 fine Sand.	Days old.	Number of Experiments.	1 Cement and 1¼ fine Sand.	Days old.	Number of Experiments.	1 Cement and 1½ fine Sand.	Days old.	Number of Experiments.	1 Cement and 1¾ fine Sand.	Days old.	Number of Experiments.	1 Cement and 2 fine Sand.
Averages ...	Sun-dried ...	8	2	118	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	In water ...	25	4	150	25	4	100	24	...	122¾	24	4	123¾	...	...	...	...	...	...	...	...	...
	Do. ...	...	...	...	...	...	..	...	...	...	...	...	...	35	4	42¼	35	4	46	34	4	37
	Do. ...	...	...	...	...	...	...	...	...	...	...	...	...	72	2	125	72	8	50¾	71	7	51
Maximum ...	...	...	...	154	...	...	130	...	...	127	...	...	136	...	...	130	...	...	80	...	...	59

Remarks.—The cement here referred to was simply a mixture of two parts slaked lime with three parts surki, which the previous experiments had shown to be the best proportion.

III.—*Seven Sets of Experiments on the strength of Cement made of Lime and Surki mixed, and the Cement so formed afterwards mixed with coarse Sand.*

—	—	Days old.	Number of Experiments.	1 Cement and ½ coarse Sand.	Days old.	Number of Experiments.	1 Cement and ¾ coarse Sand.	Days old.	Number of experiments.	1 Cement and 1 coarse Sand.	Days old.	Number of Experiments.	1 Cement and 1¼ coarse Sand.	Days old.	Number of experiments.	1 Cement and 1½ coarse Sand.	Days old.	Number of Experiments.	1 Cement and 1¾ coarse Sand.	Days old.	Number of Experiments.	1 Cement and 2 coarse Sand.
Averages ...	Sun-dried ...	...	...	...	...	..	...	...	...	..	8	2	82½	..	...	...	...	...	...	...	...	...
	In water ...	28	4	185	28	4	171	26	4	150½	26	4	156¼	...	...	...	...	...	...	...	...	...
	Do. ...	...	...	...	...	...	...	...	...	...	...	...	...	34	3	55¼	33	4	44¾	33	4	48
	Do. ...	...	...	...	...	..	...	...	...	...	...	...	...	42	3	74	...	...	...	...	...	...
	Do. ...	...	...	...	...	...	...	...	...	...	...	...	...	71	4	84¾	70	4	95	70	...	109¼
Maximum ...	...	...	...	200	...	...	186	...	...	180	...	...	197	...	...	105	...	...	120	...	...	150

Remarks.—Same remarks as in the preceding series.

IV.—*Five Sets of Experiments on the strength of Cement made by mixing Lime with raw Clay and then burning the mixture, afterwards mixing one part of this Cement with fine Sand.*

—	—	Days old.	Number of Experiments.	1 Cement and 1 fine Sand.	Days old.	Number of Experiments.	1 Cement and 1¼ fine Sand	Days old.	Number of Experiments.	1 Cement and 1½ fine Sand	Days old.	Number of Experiments.	1 Cement and 1¾ fine Sand	Days old.	Number of Experiments.	1 Cement and 2 fine Sand.
	Sun-dried	8	3	100½	8	2	134	8	4	117⅓	...	...	...	...	...	...
Averages...	In water	8	10	133⅓	8	10	110¾	8	10	80	8	10	95	8	10	60½
	Do.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Maximum	...	...	...	160	...	...	138	...	...	150	...	...	104	...	...	69

Remarks.—In these experiments the method adopted in making the cement was as follows:—The lime was not merely slaked, but it was made into a paste, which was exposed for 24 hours, then mixed with twice its quantity of raw clay; this mixture was then made into balls, which were dried in the sun, then burnt in a kiln, afterwards ground, made into brickets, and lastly put into the water to set.

V.—*Five Sets of Experiments on the strength of Cement made by mixing Lime with raw Clay and then burning the mixture, afterwards mixing one part of this Cement with coarse Sand.*

—	—	Days old.	Number of Experiments.	1 Cement and 1 coarse Sand.	Days old.	Number of Experiments.	1 Cement and 1¼ coarse Sand.	Days old.	Number of Experiments.	1 Cement and 1½ coarse Sand.	Days old.	Number of Experiments.	1 Cement and 1¾ coarse Sand.	Days old.	Number of Experiments.	1 Cement and 2 coarse Sand.
Averages	In water	8	8	115	8	10	77½	8	7	43¼	8	7	40	8	2	38
Maximum	...	...	...	130	...	...	90	...	...	54	...	...	46	...	...	40

Remarks.—Same remarks as in preceding series.

Dowlaishweram,
29th October 1875.

(Signed) J. BEATTY, Major, R.E.,
Acting Superintending Engr.; Godavery District.

D.

Cost of Manufacture of Concrete Blocks.

Materials.

RS.	A.	P.		
0	4	0	At 0-8-0 ½ Cubic yard small stone.	Form. 11 Contrete blocks of dimensions. 18″ × 9″ × 9″ or $\frac{11}{32}$ cubic yards, and 11 Concrete blocks of dimensions. 18″ × 9″ × 6″ or $\frac{11}{48}$ cubic yards.
0	5	0¾	At 0-5-0¾ 1 Parah lime ...	
0	0	2½	At 0-0-1 2½ Do. sand ...	
			22½ Gallons water ...	
0	9	3¼	Total cost of materials for $\frac{55}{96}$ cubic yards of concrete block.	
			Labor.	
0	7	6	At 0-1-6 5 days coolies (pounding).	
0	4	6	At 0-3-0 1½ days do. (mixing and manufacturing) for do. do.	
1	5	3¼	Total cost of $\frac{55}{96}$ cubic yards, or concrete blocks cost Rupees 2-5-1 per cubic yard.	

DOWLAISHWERAM,
6th October 1875.

(Signed) A. J. CHANCELLOR,
Asst. Engr. in charge, No. 1 *Range, Godavery.*

E.

Estimate of the Cost of Dowlaishweram Cement per Parah.

No.	Particulars.	Rate. RS.	A.	P.	Per	Amount. RS.	A.	P.
$\frac{2}{5}$	Parah lime, at	0	2	8	Parah.	0	1	1
$\frac{3}{5}$	,, surki, at	0	5	3	,,	0	3	2
	Add for mixing	...			...	0	0	3
	Cost of one parah of cement	...			...	0	4	6

F.

Estimate of the probable Cost of Manufacturing Concrete Blocks at Dowlaishweram with Cement, Sand, and small Stones.

No.	Particulars.	Rate. RS.	A.	P.	Per	Amount. RS.	A.	P.
...	One parah cement, at	0	4	6	Parah.	0	4	6
2½	Parahs sand, at	0	0	1	,,	0	0	2½
5·832	Parahs = ½ cubic yard of small stone	0	9	0	Cubic yard.	0	4	6
1	Cooly for pounding, mixing, &c.	...			...	0	3	0
3	Women	...			...	0	6	0
	Rate for $\frac{55}{96}$ * of a cubic yard	...			...	1	2	2½
	Hence, rate per cubic yard	...			...	1	15	6

(Signed) J. BEATTY, Major, R.E.,
Acting Suptg. Engr., Godavery District.

No. 1,368.

No. 613-A. *Note by the Chief Engineer for Irrigation.*

THE information contained in the papers submitted with the letter, No. 2,240, of the 29th ultimo, from the Superintending Engineer, Godavery, is of considerable value and interest.

* See results obtained from experiments on blocks made with lime, statement marked D.

1*st.*—It is shown, statement A, that the best size of limestone for charging the kilns is to break it into pieces which will just pass through a $2\frac{1}{2}$ inch ring. Larger and smaller pieces yield less burntlime and more refuse, owing no doubt in the former case to the pieces not being burnt through, and in the latter probably to the draught of the fire being checked by the smallness of the interstices.

Best size of lumps of limestone for burning.

2*nd.*—Statement B shows that the cost of burnt clay in fine powder is $7\frac{1}{4}$ Annas, when ground by Wells' surki mill, and $5\frac{1}{4}$ when a mortar mill was used. It is explained that the former machine is not adapted for grinding to an impalpable powder, but nevertheless it may be very useful for grinding to the size of coarse sand, further reduction being otherwise accomplished.

Cost of burnt clay in fine powder.

3*rd.*—Statement C shows :—

(*a.*) The inferiority of sand mortar to cement mixtures for hydraulic work, and it has to be remembered that the Godavery limestone yields a lime much less fat than the descriptions elsewhere found and used.

Experiments with different mixtures differently prepared.

(*b.*) That with lime burnt and mixed with burnt clay, the subsequent dilution with coarse sand gives much better results than with fine sand.

(*c.*) That on the other hand with a cement prepared by making burnt lime into paste, mixing it with raw clay and burning the mixture, dilution with fine sand yielded the best results.

4*th.*—With lime at $5\frac{1}{16}$ Annas a parah and stone at 1 Rupee a cubic yard, concrete blocks made with lime and sand mortar—

Cost of concrete blocks, statements D and F.

18 inches by 9 inches by 9 inches and
18 ,, by 9 ,, by 6 ,, cost formerly Rs. 2-5-1 a cubic yard.

On the other hand similar blocks made with cement, the cost of lime having been lately reduced from $5\frac{1}{16}$ to $2\frac{1}{3}$ Annas a parah, are estimated to cost Rupees 1-15-6 a cubic yard. Since the stone quarries have been turned to so much better account, the importance of concrete blocks has much diminished; but, as mentioned by Major Beatty, their use for heavy coping in lieu of cut stone may be advantageous.

5*th*—Cement of two parts of lime to three of burnt clay is estimated to cost $4\frac{1}{2}$ Annas a parah, or 1·73 Annas a cubic foot, a very moderate price. With lime so much cheaper than it used to be, masonry in cement will probably not cost more than the former rate for masonry in sand mortar.

2. The letter from Lieutenant A. R. F. Dorward in charge of the Western Delta shows that his experience is that the use of burnt clay gives good results, but that, owing to the difficulty of obtaining it promptly in sufficient quantities, the cost of masonry has been somewhat, though not very much, greater than with sand mortar. The use of water-power for grinding clay is worthy of attention, and at Chettipett, where the head-quarters of the range will shortly be, plenty of such power is available. Stamping mills might easily be constructed, but probably rollers as in mortar mills would give the finest powder most readily. There is some plant at

Cost of Dowlaishweram cement, statement E.

Bezwada originally obtained for a rice-hulling mill which would, it is thought, be useful, though the grit stones would perhaps not do for rollers. At present the best plan will be for Dowlaishweram to supply clay powder as far as possible, and with steam-power applied to the mills it may be practicable to produce as much of this material as is needed.

3. Major Beatty in paragraph 9 mentions the points on which further information is required, and in paragraph 11 he gives a full and clear description of the mode of preparation and use of the cement used by Colonel Haig on the Upper Godavery works; the masonry there is believed to be almost unequalled in this Presidency for strength and durability.

CAMP AT ROYACHOTY,
18*th November* 1875.

(Signed) JOHN MULLINS, Lt.-Col., R.E.,
Chief Engineer for Irrigation.

No. 614. ORDER THEREON, 27th November 1875, No. 3,390.

IRRIGATION, No. 59.

THESE papers will be communicated to all Superintending and District Engineers in continuation of G.O., 21st January 1875, No. 174.

2. The Government notice with satisfaction the steady progress made with the investigation of the preparation of cements, and with the practical application of the information obtained for the benefit of the works in progress in the Godavery Delta.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 615. Read the following Proceedings of the Madras Government in the Financial Department, dated 12th November 1875, No. 2,190:—

ABSTRACT.—*Local Funds—Buildings.*—Proceedings of the Board of Revenue submitting the opinion of the Local Fund Board, Canara Circle, that the monthly rent of Rupees 10 fixed for the old Military Barracks at Puttur, taken over for the temporary use of the Local Fund School at that place, is excessive, and that Rupees 5 would be a fair charge, referred to the Public Works Department for consideration.

No. 616. ORDER THEREON, 27th November 1875, No. 3,391.

ACCOUNT, No. 18-A.

CONSIDERING that Rupees 16 a month was the valuation made by the District Engineer, which the Government reduced to Rupees 10; and that the Range Officer will gladly pay the latter sum, and rent the building for his private use, the charge already fixed cannot be reduced.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 617. Read the following letter from Lieutenant-Colonel J. F. FISCHER, R.E., District Engineer, Madura, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Chuttraputty, 15th November 1875, No. 3,272 :—

WITH reference to G.O., No. 202, dated the 28th ultimo, I have the honor to report that the delay in submitting the estimates for the works referred to is chiefly owing to the want of Local Fund Overseers in this district.

2. I request that the additional Local Fund Sub-Overseers of the first and second grades applied for in my letter No. 3,186, under date the 6th instant, may be sanctioned as soon as possible.

3. Mr. Hawksworth, the late Range Officer, is principally responsible for the estimates not having been prepared and submitted in time for execution; as soon as he saw I would not accept any estimates for new roads prepared by Overseers only, and insisted on his making at least a careful inspection of the route, he would do nothing and employed himself principally in the manner detailed in my letter printed in G.O., of the 29th July 1875, No. 2,200, without my knowledge or consent. When Lieutenant Boddy, R.E., relieved him in May last, he had the whole range to look after, but as soon as an Overseer was allowed to take the sub-division I requested him to send in these estimates as soon as possible, and they have all been submitted since. The only Local Fund Overseer, 1st grade, who is at all competent to prepare estimates, has been sick for the last six months and generally unfit for duty.

4. A practice has generally prevailed in this district to make loose entries in the Budget for certain roads, and then call for the estimates, instead of carefully selecting a good line of road, having it properly surveyed, levelled, and estimated for, and the work systematically proceeded with on some sound engineering principles; the consequence is that lines of so-called roads have been opened in all directions as already reported, and there is not a yard of good road in the whole district; and the Oosilumputty and Allinagarum road is as good an instance of this kind of thing as any to note; when I first went over it I saw at once it had never been properly made to stand any traffic, quantities of earthwork, gravel, and large loose stones all jumbled in together, and it is really believed that such a thing is a road and ought to be kept in perfect order for Rupees 100 or Rupees 150 a-mile; as soon as I was able I sent in estimates for remodelling the whole thing and giving it something in the shape of a road surface.

5. As long however as the preposterous notion prevails that so important a thing as a good road can be made for Rupees 500 a-mile, the results will be as they are here; nothing effected to reduce the cost of transport a pie a ton a mile, and the Local Fund Board, Dindigul Circle, are responsible chiefly for this state of affairs.

No. 618. ORDER THEREON, 27th November 1875, No. 3,392.

CIVIL WORKS, No. 40-A.

COMMUNICATED to the Financial Department with reference to Order in that Department, No. 2,044, of 15th October.

2. It will be observed that the District Engineer was authorized by order in the Public Works Department, No. 2,619, of 13th September, to entertain a Sub-Overseer for each taluq of the district.

3. Mr. Hawksworth has been suspended from employment for a considerable time in consequence of the unsatisfactory manner in which he has disregarded orders.

4. The preparation of the Local Fund Road Budget would appear from the District Engineer's report to require to be more systematically dealt with than has hitherto been the case.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 619. Read the following letter from Captain L. CONWAY-GORDON, R.E., Controller of Public Works Accounts, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 23rd November 1875, No. 147 W. :—

WITH reference to the accompanying copy of letter, No. I-570 of the 17th November 1875, from the Controller, Public Works Accounts, Bombay, I have the honor to request that you will be good enough to furnish me with a list of the Students of the Royal Indian Civil Engineering College, who this year have been appointed Assistant Engineers on the Public Works Establishment of this Presidency.

2. The number of officers on duty in the 1st and 2nd Grades of Assistant Engineers is as follows :—

	Sanctioned Strength.	On duty.
1st Grade	15	15
2nd „	22	22

3. The Assistant Engineers now joining from the Royal Indian Engineering College will therefore be in excess of the sanctioned strength.

From Lieutenant-Colonel J. MELLIS, S.C., Controller of Public Works Accounts, Bombay, to Captain L. CONWAY-GORDON, R.E., Controller of Public Works Accounts, Madras, dated Bombay, 17th November 1875, No. I-570.

I HAVE the honor to inform you that Messrs. Paul, Hutchings, Macleane and Taylor, Assistant Engineers, 2nd Grade, lately appointed from the Royal Indian Engineering College, and under orders to join the Public Works Department, Madras, have received an advance of *Rupees* 500 *each* from the Executive Engineer at the Presidency, Bombay.

No. 620. ORDER THEREON, 29th November 1875, No. 3,393.

ESTABLISHMENT, No. 40.

THE information asked for in paragraph 1 has already been supplied. The Assistant Engineers now joining will be absorbed as vacancies occur.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 621. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Government of India, P.W.D., dated 29th November 1875, No. 3,394.

MILITARY WORKS, No. 18.

Sir,—With reference to the marginal remark to paragraph 6 of the Resolution of the Government of India, No. 710—26 A.G., dated 30th October 1875, I am directed to state that the design and estimate for converting the Public Works Workshop into a Military Hospital have not up to the present time of writing been received.

2. I am to call your attention to the delay which has occurred in conveying the sanction of the Government of India for the prosecution of this work, the estimate for which was forwarded with my letter No. 2,365, dated 16th August 1875, and an entry of Rupees 30,000 on account of which stands in the Budget of the current year. I am directed to request permission to lay out that sum in the collection of materials to facilitate progress next year.

No. 622. Read the following endorsement of the Consulting Engineer for Railways, dated Madras, 27th November 1875, No. 642 :—

From R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Madras, 25th November 1875, No. 1,182.

With reference to the last paragraph of your letter, No. 1,231, of the 19th instant, I have the honor to state that I learn from the Chief Engineer that he has every hope that the Cheyaur bridge will be completed in less then two years, but as there is an element of uncertainty in connection with the receipt of the additional cylinders indented for from England, he thought it more prudent to put down what may be looked upon as a perfectly safe date.

Submitted for the information of Government with reference to their Order, dated 6th November 1875, No. 3,162.

2. Indents for extra lengths of cylinders required in consequence of the additional headway of 3 feet, and for the girders for four additional openings, were sanctioned by this office on the 2nd September 1875. As the whole of this material can be put in position within a short time after its receipt, it is hoped that the bridge will be ready for traffic early in 1877.

(Signed) W. H. COAKER, Captain, R.E.,
for *Consulting Engineer for Railways.*

No. 623. ORDER THEREON, 30th November 1875, No. 3,395.

RAILWAY, Nos. 72 & 73.

ORDERED to be forwarded to the Government of India.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 624. (DOCKET No. 3,396, dated 30th November 1875.)

COPY of the above forwarded to the Government of India with reference to paragraph 2 of their letter, No. 2,699 R., dated 28th October 1875.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following :—

No. 625. From the Superintending Engineer, Chingleput, dated 7th October 1875, No. 2,814.

No. 626. ORDER THEREON, 30th November 1875, No. 3,397.

ESTABLISHMENT, No. 41.

HIS Excellency the Governor in Council is not able to discriminate with exactness between the extent to which Mr. Lowry has wilfully neglected to obey the orders of the District Engineer, and the extent to which he has been confused by their indefiniteness and incompatibility with the views of the Local Fund Board. He has thought it best therefore to put an end to the existing bad understanding between them by removing Mr. Lowry to the Salem District, where it will be his duty to make himself thoroughly acquainted with the orders of the District Engineer, and to carry them out loyally, as directed in the rules of the department.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following papers :—

No. 627. From Captain R. F. MORRIS, R.E., District Engineer, Trichinopoly, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Trichinopoly, 8th October 1875, No. 582.

IN the list of works prepared by the Garrison Committee lately assembled at this station for the purpose of investigating the wants of every corps and department under the provision of G.O.C.C. of 9th May 1865, was included "re-roofing the European

Detail Hospital" at an approximate cost of Rupees 5,400, I now have the honor to bring to your notice the necessity for including this item in the budget for 1876-77. The roof is very old, and I consider that it would be unsafe to leave it in its present condition for another year.

2. The estimate is under preparation and will be forwarded in due course.

No. 628. Proceedings of the Madras Government in the Military Department, dated 10th November 1875, No. 5,456.

ABSTRACT.—Approving an estimate for re-roofing the European Detail Hospital at Trichinopoly.

No. 629. From the District Engineer, Trichinopoly, dated 20th November 1875, No. 713.

No. 630. ORDER THEREON, 30th November 1875, No. 3,398.

MILITARY WORKS, No. 19.

THE work in question being looked on as so emergent will be undertaken at once, and a grant of Rupees 2,500 made from the Repair Funds at the disposal of the Chief Engineer to be supplemented hereafter if more can be utilized in the current official year. But the District Engineer should take pains to ensure that the work now to be done shall be lasting and not require entire renewal in future. It should in fact be reported how it happens that such total renovation is now necessary, a history of the existing work being given in detail.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 631. Read the following letter from Colonel C. H. DICKENS, R.A., Secretary to the Government of India, Public Works Department, (Account—General,) to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department, dated Simla, 21st October 1875, No. 651 A.—G. :—

I AM directed to acknowledge receipt of your communication, No. 2,474-A, dated 30th August 1875, and in reply to say that, while the principle sanctioned by the Government of Madras for adjusting the charges for tools and plant between Provincial and Imperial Funds provides for some portion of the rules that are required on the subject, yet the proposals made by the Controller, Public Works Accounts, on which the orders of the Government of Madras have been passed, require to be made more precise in order to admit of practical effect being given to them.

2. Thus, one of the proposals is that all tools and plant obtained from England for stock purposes should be kept in suspense, but it is not stated whether this suspense

account will be kept under Imperial or Provincial Funds. This is obviously an important point as bearing on the source from which a grant should be provided to cover any increase in the balance held at the debit of suspense.

3. Again, the rate at which Imperial Funds should be debited for value of tools and plant issued is not stated.

4. In the case of establishments in Madras, the whole of the charges are debited to Provincial Funds, Imperial Funds paying a certain proportion of the cost of the same, that proportion being based on the grant or outlay on works and repairs. The Government of India consider that a like arrangement would be unobjectionable in the case of tools and plant. This is what has been done in Bombay, and I am to ask that the Government of Madras may be moved to consider whether it would not simplify matters to treat the whole cost of the tools and plant as Provincial Funds, Imperial Funds paying such rate of contribution as may be proper. The copy of the correspondence* that has passed on the subject between the Governments of India and Bombay is herewith forwarded for information. As the administration of irrigation works is not distinct from that for buildings and roads under the Government of Madras, the last paragraph of the orders issued to the Government of Bombay would not of course be applicable to Madras.

*Letter from Bombay, No. 121 A., dated 13th May 1875.
Public Works Department letter, No. 606 A. G., dated 28th September 1875.

From Colonel M. K. KENNEDY, R.E., Secretary to the Government of Bombay, Public Works Department, to the Secretary to the Government of India, Public Works Department, dated Bombay, 13th May 1875, No. 121 A.—799.

VI.—Accounts.

THE Secretary of State for India, in his Public Works Department No. 5, of the 18th March 1875, sanctioning an indent for certain instruments, drawing materials, and stores required for the Public Works Department, declined to charge half to Imperial and half to Provincial Funds, as requested by this Government, and directed that they should all be charged to Imperial Funds.

2. In a previous despatch, No. 11 of 20th March 1873, the Secretary of State remarks, with reference to a similar case, that "when such stores are appropriated to service chargeable to Provincial Funds, the matter should be adjusted by credit being given to the Imperial Revenue for their value. This course will be in accordance with the practice in other Presidencies, and is calculated to ensure a more accurate division of the cost of the supplies between the two Funds."

3. I am to remark that the adoption of the Secretary of State's instructions would give rise to a great deal of trouble, if a credit is to be given or taken between Imperial and Provincial Funds every time a few yards of drawing paper, or trifling article of this sort, is issued to a Provincial Division. In fact, the whole system of some of the divisions in this Presidency being treated with reference to tools and plant as Imperial, and some as Provincial, appears to be unnecessarily complicated, and to give rise to various anomalies. For instance, an Executive Engineer of an Imperial Division lately applied for a large sanction for rollers, which would have been principally used for rolling Provincial roads. The anomaly, therefore, arose of Imperial Funds providing rollers for Provincial roads. On the other hand, if these rollers were sanctioned from Provincial Funds, part of the Executive Engineer's tools and plant would be Imperial and part Provincial, not to mention the further complication of tools and plant belonging to the Local Funds.

4. I am therefore directed to suggest as a simple solution of the whole question—

1st.—That all tools and plant in this Presidency, whether Imperial or Provincial, be henceforth treated as Provincial.

2nd.—That the amount annually entered in the Imperial Budget for tools and plant be henceforth taken at a percentage rate of, say, 1½ or 2 per cent. on the outlay for Imperial works, in a similar way as a percentage of 23 per cent. is given by the Government of India on account of Establishment.

3rd.—That the amount so entered be treated as a contribution on account of use of Provincial tools and plant, and that the latter be bound to supply all tools and plant required for use on Imperial works without any further charge of any sort.

5. I am to remark that these rules should only be held to be applicable to ordinary works, but that, in the case of large works, such as the Bombay Harbour Defences and Kurrachee Harbour Works, for which special and costly tools and plant have been purchased, this should remain Imperial property, and, should similar cases again arise, tools and plant for such works should be treated as part of the work, and charged to it, as has been done in the cases above mentioned.

Copy of a letter No. 606 A. G., dated 28th September 1875, from the Government of India, Public Works Department, to the Secretary to the Government of Bombay, Public Works Department.

I AM directed to acknowledge receipt of your letter No. 121 A., dated 13th May 1875, and in reply to state that, under the circumstances therein represented, the Government of India have been pleased to approve of the proposals made by the Government of Bombay, under which the whole cost of tools and plant shall be charged to Provincial Funds, Imperial Funds paying a certain contribution for the use of the tools on Imperial works.

2. As regards the rate of contribution, I am to say that, as for the current official year, the total grant for tools and plant forms 1·43 per cent. of the grants for works and repairs, the Government of India consider that it will suffice if Imperial Funds pay 1½ per cent., and I am therefore to request that this rate may be adopted, the calculation being made on the *original* grant for Imperial Works and Repairs or the outlay on the same, whichever may happen to be the greatest.

3. The new rules may conveniently be introduced with effect from 1876-77, the Secretary of State being informed at the time the indents for that year are submitted to him that the payments from that year for tools and plant should, unless otherwise specially mentioned, be debited in the Home accounts to Provincial Funds and as remittances to India.

4. By the arrangements now sanctioned the sale proceeds of tools and plant of the buildings and roads branch will be credited from 1876-77 to Provincial Funds. Sale proceeds of tools and plant specially procured for large works, and charged as a portion of their cost in the manner mentioned in paragraph 5 of your letter under acknowledgment, will of course be credited to those works.

5. It is to be understood that unless there are special reasons for so doing, of which the Government of India are not aware, the arrangements herein sanctioned do not apply to Irrigation works, the cost of the tools and plant for which will be dealt with as at present.

No. 632. ORDER THEREON, 30th November 1875, No. 3,399.

ACCOUNT, No. 19.

THE letter of the Government of India will be communicated to the Controller of Public Works Accounts, who will be requested to report in detail the arrangements which he suggests for the adjustment of the outlay on tools and plant in this Presidency.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 633. Read the following endorsement of the Chief Engineer for Irrigation, dated Camp at Royachoty, 19th November 1875, No. 1,382 :—

Statement of Outlay on Repairs and Minor New Works, Agricultural, for the month of September 1875.

Districts.	Repairs.					Minor New Works.				
	Budget Estimate	Revised Grant.	Allot-ment up to end of month.	Amount of Esti-mates sanction-ed.	Amount expend-ed.	Budget Esti-mate.	Revised Grant.	Allot-ment up to end of month.	Amount of Esti-mates sanction-ed.	Amount expend-ed.
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Ganjam ...	40,000	39,000	13,000	42,485	9,598	2,500	2,000	1,750	2,742	1,477
Vizagapatam ...	17,500	17,500	8,700	8,670	7,789	2,000	1,600	2,000	1,600	939
Godavery ...	1,76,200	1,72,000	1,30,000	2,76,465	1,31,039	17,000	13,600	5,000	8,356	3,311
Kistna ...	1,30,000	1,27,000	1,60,000	2,04,826	1,32,569	10,000	3,000	3,000	750	648
Nellore ...	71,700	71,000	54,000	1,71,670	45,754	8,300	6,640	8,700	19,963	12,987
Bellary ...	51,500	50,000	40,000	77,205	38,277	10,000	8,000	2,500	2,409	726
Cuddapah ..	60,000	58,000	40,000	29,582	22,718	12,000	9,600	3,000	2,937	1,585
Kurnool ...	40,000	39,000	35,000	58,079	29,592	5,000	4,000	4,000	5,967	2,484
Presidency ...	3,000	3,000	2,636	2,895	137	...	...	...	...	...
Chingleput ...	1,10,000	1,10,000	65,000	1,16,502	54,372	15,000	12,000	6,000	10,534	4,124
North Arcot ...	1,35,000	1,32,000	80,006	1,58,634	70,082	15,000	14,000	19,000	39,957	14,355
South Arcot ...	1,20,000	1,17,000	50,000	80,916	26,957	15,000	12,000	6,000	11,319	2,597
Salem ...	60,000	58,000	28,000	41,713	22,696	15,000	12,000	7,000	10,079	5,110
Tanjore ...	1,68,500	1,64,000	1,10,000	2,08,404	83,901	10,000	8,000	9,000	16,737	6,704
Trichinopoly ...	90,000	88,000	65,000	1,03,457	60,604	8,000	6,400	2,000	8,447	2,092
Coimbatore ...	75,000	73,500	30,000	32,782	28,625	6,000	4,800	4,800	4,800	3,998
Malabar ...	1,100	1,100	1,550	1,510	689	500	400	200	...	...
Madura ...	50,000	48,500	29,000	1,27,330	31,785	8,000	4,400	2,000	7,753	1,392
Tinnevelly ...	1,00,500	98,200	98,200	1,54,775	82,981	15,000	12,000	11,361	12,766	7,574
Total ...	15,00,000	14,66,800	10,40,086	18,97,900	8,80,165	1,74,300	1,34,440	97,311	1,67,116	72,103
Unallotted ...	...	...	...	...	...	...	5,000			
							1,39,440			

Camp at Royachoty,
19*th November* 1875.

(Signed) JOHN MULLINS, Lieut.-Colonel, R.E.,
Chief Engineer for Irrigation.

Submitted for the information of Government.

The Statement shows inadequate progress in the following districts :—

Repairs.

	Half Grant.	Expenditure.
	RS.	RS.
Ganjam	19,500	9,598
Vizagapatam	8,750	7,789
Cuddapah	29,000	22,718
South Arcot	58,500	26,957
Salem	29,000	22,696
Coimbatore	36,750	28,625

2. In G.O., of the 12th August last, No. 2,325, it was directed that short progress exhibited in the statements for September was to be duly and fully explained.

3. The monthly statement from Ganjam was submitted without any explanation whatever, though there is evidently much need of it, seeing that the expenditure was less than half what would have been reasonable. The Vizagapatam statement affords

no explanation, but in this case the difference between the progress indicated and that expected is not very marked.

Cuddapah.—The statement is silent on the subject. A reminder was sent on the 30th October, to which no reply has been received, but the District Engineer, being in camp with the undersigned, states that short progress is attributable to sickness.

No. 1,268.

South Arcot.—The explanation is neither satisfactory nor complete; it runs thus:— "The expenditure is much less than it should have been, and it is feared that it will be almost as short in October and November; there are many works on which there are balances due to contractors, the works not having been fully completed; it is hoped that after the rains they will be completed and fully paid for." Sickness has probably had something to do with delay in carrying out sanctioned work, but the real reason no doubt is that the executive establishment in the district was for a long time weak and inefficient, and the natural result followed. It will take some time to get better arrangements into working order.

Salem.—The explanation given indicates unsatisfactory arrangements early in the year, it being stated that want of sufficient estimates was one cause of short progress. Cholera throughout the district is a second reason given. The Salem Range, owing to the ill-health of Mr. Turner, was much behindhand, and no improvement had taken place up to the end of October. The District Engineer hopes to be able to show better results in the third quarter of the year.

Letter No. 67 of 26th October.

Coimbatore.—The explanation given is fairly, though not altogether, satisfactory. The Superintending Engineer states that one-third of the expenditure is on the clearing of the Bhowany river channels, and that this work is done in February, March and April. Also that tank work is done principally from January to May. It would then be reasonable to suppose that the expenditure in April and May would be heavy, but the statements for these months show outlay—

In April	Rupees	5,429
In May	,,	4,761

in both cases less than the average of Rupees 6,125 required.

4. *Minor New Works.*

	Half Grant.	Expenditure.
	RS.	RS.
Godavery	6,800	3,311
Kistna	1,500	648
Bellary	4,000	726
Cuddapah	4,800	1,585
Chingleput	6,000	4,124
South Arcot	6,000	2,597
Salem	6,000	5,110
Trichinopoly	3,200	2,092
Madura	2,200	1,392

In the Godavery and Kistna nearly all Minor New Works in the deltas are chargeable to Revenue, and are provided for therefore from the repair grant. The Kistna grant has been recently reduced in consequence, and a similar transfer of funds from the Godavery will be made. Nevertheless there must be many works out

of the deltas needing the improvements intended to be effected by this grant, and the reduced amounts should be utilized for their benefit.

Bellary.—The District Engineer reports that short expenditure is due to changes in the establishments and to several of the subordinates being new to the district. For the outlay of the very trifling amount at most available, the District Engineer should himself be able to select and design a sufficient number of works. Mr. Leggatt joined only in August, and so he is only to a very small extent responsible.

Cuddapah.—The remarks regarding repairs are applicable to Minor New Works. With regard to the absence however of explanations, the District Engineer says that he is sure he did not get the order of the 12th August until after his statement was despatched in October, and on turning to the order it will be seen that it was communicated to the District Engineers concerned, and really all District Engineers were concerned, but probably only those mentioned in paragraph 2 of the endorsement on the statement for June got the order in the first instance. The orders on all the monthly statements should go to all District Engineers.

Chingleput.—The Superintending Engineer mentions that the expenditure shown does not fully represent the progress made, but as in respect of these statements work done in March and paid for in April is taken credit for in the year to which the latter month belongs, that explanation cannot be accepted as fully satisfactory. However, exertions are being made in this district to get on with this sort of work, and numerous estimates have been sanctioned, so that it is believed favorable results will be shown at the end of the year.

South Arcot.—The remarks on the want of progress on repairs are applicable to Minor New Works also.

Salem.—Though half the grant had not been expended, the progress may be considered not unsatisfactory, seeing that until recently very little work of this kind had been done.

Trichinopoly.—The absence of explanation is probably due to the non-communication of the order of the 12th August.

Madura.—The absence of explanation in the statement for September is probably due to the non-communication of the order, but the District Engineer had previously reported that he would not be able to spend the full grant, and had recommended its diversion to the investigation of projects, and as a result the grant was reduced and the difference transferred for utilization elsewhere.

5. It may be noticed in connection with the want of explanation in many cases that in the statements for each and all months in which progress may have been unsatisfactory, explanations are necessary.

(Signed) JOHN MULLINS, Lieut.-Col., R.E.,
Chief Engineer for Irrigation.

No. 634. ORDER THEREON, 30th November 1875, No. 3,400.

IRRIGATION, No. 60.
Account.

The Honorable the Governor in Council observes that G.O., No. 2,325, of the 12th August 1875, required that full explanation should be given of all inadequate progress on Repairs and Minor New Works up to the 30th September, but, owing

to the non-communication of that order to many District Engineers, it was not known to them that such explanation had been called for, and consequently the information available is incomplete. The District Engineer, Ganjam, however appears to have been furnished with the order referred to, and yet has sent no explanation, although the outlay on Repairs was less than half the proper amount. He will report why the order was not attended to.

2. In six districts repairs were behindhand, and in nine districts the progress of Minor New Works was inadequate. As regards both classes of works South Arcot shows very unsatisfactory progress, and in Cuddapah Minor New Works were much in arrears.

3. For the whole Presidency the half grant for repairs was exceeded by Rs.1,30,000 and that for Minor New Works by Rupees 2,400.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 635. Read the following letter from Captain L. CONWAY-GORDON, R.E., Controller of Public Works Accounts, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 25th November 1875, No. 151 W. :—

IN continuation of my letter No. 147, of the 23rd November 1875, I have the honor to request that you will be good enough to inform me of the rate at which recovery should be made of an advance of Rupees 500 received at Bombay by cash of the undermentioned Assistant Engineers, who have recently arrived in India from the Royal Indian Civil Engineering College :—

Mr. H. B. Hutchings.
,, H. S. Taylor.
,, J. E. Paul.
,, D. Macleane.

2. The advances made to the Assistant Engineers appointed from the College last year were ordered in G.O., No. 138-A., of the 16th January 1875, to be recovered at the rate of Rupees 50 a-month, but I may point out that the usual course is to recover all advances by deductions of one-sixth the monthly salary, *vide* Public Works Code, Chapter III., Section 2, paragraph 30, an d I would recommend this course being pursued in the present instance.

No. 636. ORDER THEREON, 30th November 1875, No. 3,401.

ESTABLISHMENT, No. 42.

RECOVERIES will be made at the rate of one-sixth of the monthly salaries, as suggested by the Controller.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 637. Read the following endorsement of the Chief Engineer for Irrigation, dated Camp at Royachoty, 19th November 1875, No. 47 :—

From A. J. DODSON, Esq., Manager and Acting Chief Engineer, Madras Irrigation and Canal Company, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, dated Kurnool, 13th November 1875, No. 125.

October Reports.

I HAVE the honor to forward, per book post, copies of the Upper and Lower Divisions Reports, together with my own for the month of October 1875.

MADRAS IRRIGATION AND CANAL COMPANY.

UPPER DIVISION.

Monthly Report for October 1875.

THERE was very little, and in some parts, no rain up to the 20th, when a heavy and continuous fall took place. At Kurnool, from the 20th to the 24th, upwards of 4 inches were registered ; and at Ayaloor 4·6 inches.

2. For the few days before this there had been a great demand for water, and all were busily engaged in supplying the fields. Some applications had been made for watering dry crops, and there was every appearance of a large demand for canal water ; the sudden downfall however occurred just in time to stop many ryots from taking tickets.

3. All the principal works of repair have been finished for this season ; but the raising of the banks in a few places still continues. The calingulah No. 9 A in the 7th section has been completed. It is built with an overfall 3 feet below full water line, and will be an additional security to that part of the canal. Extra works have been required on account of the natural drainage of the country ; also to accommodate the waste water from several Government tanks situated above the canal in the Nundial Taluq.

4. Little has been done to the 6th section beyond repairing and caulking the gates ; the uncertainty regarding navigation renders it inexpedient to commence the heavier repairs on the locks.

5. The alteration of four foot-bridges into bridges for bandy traffic has been sanctioned by Government and the estimates passed. Certain portions of the work cannot be done till water is out of the canal, but the earthwork and teak frames will be commenced immediately. The teak has been ordered from Madras.

6. With regard to irrigation generally there is little to report. Tickets have not yet been issued to all the ryots. It is probable that the second crops will be increased considerably this year, and should the rains cease now, as is usually the case, there may still be a good area of dry crops requiring water.

7. The season seems to be favorable to all kinds of crops. The rice-fields especially appear to be very fine, and all the ryots I have spoken with report them so. The general failure in last year's crops has had a bad effect on the prospects for this season. Add to that the uncertainty in the minds of many ryots and the novelty of the rules, as well as the hope which has been cherished (and supported, I believe, by some of the officials), that the rates will be again reduced, it will not be matter for much wonder that the large increase expected has not been attained. In my division, I hope, the estimate for the first crops will be exceeded.

8. During the last twelve months many canal crossings have been improved. In consequence of the fixed headway under the bridges necessary for first-class canal navigation, the road approaches are heavy works. All roads are difficult to keep in order in this country ; but the approaches to a bridge are continually in want of repairs. When first the approaches were made small banks were placed on each side to prevent cattle and bandies from straying off the

roadway, and down the slopes ; but the herds of buffaloes, bullocks, and goats which daily pass over soon trampled them down and rendered them useless. It has been found that nothing but a wall, or steeply revetted side bank will stand the village traffic, and one by one the roads are being widened to allow of this improvement. The following bridges have been taken in hand and finished :—Jolapoor bridge, Poodoor, Ulloor, Moochmurry (old), Terrigopully, Mittacondala, and Toorcherla. Velapanoor bridge approach has been widened to the 25 feet width and stone collected for the side walls. The question as to the length of time that these repairs should be carried on by the Company is still unsettled. Except on the main roads, however, it does not seem probable that any money can be expended by the Government on repairs, so that it is better for the Company to keep them in order ; this however forms an important item in the expenditure charged as repairs to the canal.

9. The health of the staff has been good. A few cases of fever occurred.

(Signed) C. H. WILKS,
Conservancy Engineer.

LOWER DIVISION.

Report for the month of October 1875.

THE eastern monsoon may be considered now as over ; it has been very light compared with that of last year, the only heavy fall having been on the 23rd.

2. The Pennair was in fresh towards the end of the month ; but never rose more than 6½ feet over the crest of its anicut. The injuries done during October 1874, which were repaired last hot weather, have stood well, and only a few feet of the coping to another part of the toe wall have been removed, a trifling injury one day's labor will repair.

3. During this month I have in company with Mr. Dunphy passed nearly the whole length of the lower division in his boat, passing through all the locks without any difficulty, except lock No. 16, at Rajoly, which we could not fill owing to some one or more of the stones of the lower cill having been removed ; as soon as the canal is again dry this can be repaired without any difficulty, and I found during my inspection of the 94 miles which are included in this division no injury done to any of the banks, locks, or other masonry works by the rains of the past monsoons, the whole of the main canal works (with the trifling exceptions mentioned above) being in a sound condition, fully capable of carrying out the work for which they were constructed.

4. The distribution works are also in a good condition, though some heavy local showers caused a few breaches in some of the larger channels, but not such as to cause any injury to the crops under irrigation. The aqueduct over a backwater of the Pennair, which forms part of the new Goorumpaud channel, is now completed, and I hope it will be in time to secure some second crops ; next season I expect over 200 acres under it.

5. *Irrigation.*—It is impossible yet to say more on the prospects for this season's irrigation than I said in my last report. Many applications are yet unrecorded ; but I still hope to attain the averages in each taluq I gave last month ; but it is very dangerous to trust in any promises made by ryots as to the amount of acres they intend to cultivate, their idea of numbers being as uncertain as their regard for truth is slight.

6. *General.*—During my progress down the lower division I stayed three days at Dhoor, and did my best to get the irrigation settlement for 1874-75 settled up ; but the delays in the office of the Cuddapah Deputy Collector seem endless. I have therefore given orders for our Statement to be completed at once without any more comparisons with, or by, Curnums, whose accounts seem hopelessly inaccurate and confused. Cholera still lingers among some villages near the canal, but none of the Company's servants have been attacked during this month, and we may hope that with the approaching cold season the disease will disappear.

(Signed) A. J. DODSON,
Conservancy Engineer.

Acting Chief Engineer's Report to accompany the Divisional Reports for October 1875.

THE reports of the Conservancy Engineers of the Upper and Lower Divisions prove the state of the works of the Main Canal and distribution works to be very satisfactory, which I am able to confirm by my personal observations, having during the month inspected the whole Main Canal from Soonkesala to Cuddapah.

2. It is not, I think, advisable for me to enter into any more speculations on the subject of this season's spread of irrigation, but I may say that in the Kurnool District, where we are ably assisted by the Revenue authorities, I do not doubt that the estimated amount of irrigation given in my report for September will be obtained. In the Cuddapah District I am not so sanguine of an increase, as we have many difficulties to contend with, and the loss of so many hundred acres of paddy due to floods of October 1874 has prevented many ryots from sowing paddy this season, especially in villages near the Pennair river. All who have not sown on that account, seeing the good crops their neighbours have obtained, now greatly regret their timidity, and many will, I hope, try for an early second crop.

3. At the Kurnool workshops Mr. Crawford has, at my request, been fixing up in the new machine shed several of the many valuable tools which belong to the Company, including a vertical and a circular saw-table for timber, two lathes, screw-cutting machine, drill and slotting machine, &c., and he has succeeded in getting them all into good working order, so that if navigation should be determined on, barges can be constructed by the Company in their own workshops by the side of the canal.

4. The river Toombuddra has not risen more than 1·3 feet above the anicut crest during this month, and by the 31st it had fallen to 0·3 above, but none of the undersluices have been closed.

5. At the end of October 1874, 3′·2″ was running over the crest, but that was after an exceptionally wet season. I hope we may be able to retain water in the canal for irrigation purposes up to the end of March next year, so as to secure the second crops sown, which I expect will be very extensive.

6. The usual table of rainfall accompanies this report.

KURNOOL, (Signed) A. J. DODSON,
12*th November* 1875. *Acting Chief Engineer.*

Register of Rainfall in Inches and Decimals of the following Stations during the Month of October 1875, *at* 6 A.M. *daily*:—

Month and Date.	Soonke-sala.	Kurnool.	Jupand.	Velapa-noor.	Ayaloor.	Chinta-coonta.	Rajoly.	Dhoor.	Adima-pully.	Remarks.
1st October 1875 ...	...	...	...	...	...	...	...	0·25	...	
2nd do. ...	...	...	...	0·10	...	...	...	...	...	
3rd do. ...	...	...	...	0·00	0·06	...	...	...	...	
4th do. ...	...	...	..	...	0·07	...	...	...	...	
5th do. ...	1·20	0·85	...	0·40	0·07	...	...	0·70	...	
6th do. ...	0·30	0·02	...	0·10	...	...	...	...	...	
7th do. ...	...	...	...	...	...	...	...	...	...	
8th do. ...	...	...	...	...	...	...	...	...	...	
9th do. ...	...	...	...	...	...	...	...	...	...	
10th do. ...	...	...	..	...	...	...	...	...	...	
11th do. ...	0·30	...	...	...	..	...	...	...	...	
12th do. ...	...	...	...	...	...	...	...	...	...	
13th do. ...	...	...	...	...	...	...	...	...	...	
14th do. ...	...	...	...	...	...	...	...	...	...	
15th do. ...	...	...	...	...	...	...	...	...	...	

Register of Rainfall in Inches and Decimals of the following Stations, &c.—(Concluded.)

Month and Date.	Soonkesala.	Kurnool.	Jupand.	Velapanoor.	Ayaloor.	Chintacoonta.	Rajoly.	Dhoor.	Adimapully.	Remarks.
16th October 1875 ...	...	...	...	...	...	...	...	...	...	
17th do. ...	...	...	...	...	...	...	...	...	...	
18th do. ...	...	...	...	...	...	...	...	...	...	
19th do. ...	...	...	...	...	...	...	...	...	...	
20th do. ...	...	...	...	...	0·90	...	...	...	...	
21st do. ...	...	0·20	0·20	0·60	1·85	0·40	...	0·65	...	
22nd do. ...	1·40	2·40	1·90	1·40	1·05	...	1·10	...	0·28	
23rd do. ...	0·70	0·40	0·10	0·20	0·87	0·46	2·47	2·09	0·28	
24th do. ...	1·20	1·05	1·40	1·10	...	...	...	0·32	0·60	
25th do. ...	...	...	...	...	...	...	...	0·35	...	
26th do. ...	1·70	...	...	...	...	...	...	...	...	
27th do. ...	...	...	...	...	...	...	...	...	...	
28th do. ...	...	0·35	...	...	...	...	...	...	...	
29th do. ...	...	...	...	...	...	...	...	...	...	
30th do. ...	...	...	...	...	...	...	...	...	...	
31st do. ...	...	...	...	0·10	...	...	...	...	...	
Total ...	6·80	5·27	3·60	4·00	4·87	0·86	3·57	4·36	1·16	

KURNOOL,
11*th November* 1875.

(Signed) A. J. DODSON,
Manager and Acting Chief Engineer.

SUBMITTED for the information of Government.

2. It will be noticed in the report of the lower division that Mr. Dodson has taken a boat through nearly the whole of this division, and that all the locks, except No. 16, were passed without difficulty.

(Signed) JOHN MULLINS, Lieut.-Col., R.E.,
Chief Engineer for Irrigation.

No. 638. ORDER THEREON, 30th November 1875, No. 3,402.

IRRIGATION, No. 61.

ORDERED to be recorded.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 639. Read the following letter from Major J. W. HINDLE, Officiating District Engineer, Vizagapatam, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Camp at Vizianagaram, 16th November 1875, No. 1,323:—

IN forwarding herewith copy of a letter received from the Executive Engineer in charge of Jeypore Range, applying for a gumastah* and two lascars† for the Overseer's office in his range, I have the honor to request you will be good

1 Copy of letter No. 367, dated 6th Nov. 1875.
* On Rupees 25.
† On „ 8 each.

enough to have the same sanctioned by Government from the grant for Petty Establishment.

From K. F. NORDMANN, Esq., Executive Engineer, Jeypore Ghaut Range, to Major J. W. HINDLE, Officiating District Engineer, Vizagapatam, dated Camp at Ittykavalsah, 6th November 1875, No. 367.

IN G.O., No. 2,894, dated 9th October 1874, an Overseer on the Petty Establishment was sanctioned for Jeypore, but no provision was made for a gumastah and lascars.

2. As the Overseer is hampered in his work for want of this establishment, which is generally attached to an Overseer's office, I have the honor to propose that a gumastah and two lascars on the Petty Establishment be sanctioned; and, as it is difficult to procure efficient men for Jeypore work on low country wages, I beg to recommend that the pay of the gumastah be fixed at Rupees 25 and that of the two lascars at Rupees 8 each.

No. 640. ORDER THEREON, 30th November 1875, No. 3,403.

ESTABLISHMENT, No. 44.

No more than an ordinary Overseer's Establishment can be allowed. A gumastah on Rupees 15 and two lascars on Rupees 6 each are sanctioned, the cost being met from the Budget provision for Petty Establishments.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 641. Read the following letter from Colonel F. J. MOBERLY, R.E., Superintending Engineer, Chingleput, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Camp at Satry, 14th November 1875, No. 3,400 :—

I HAVE the honor to request that Government will be pleased to authorize the payment of the establishment, consisting of one writer and two lascars, employed under Mr. Bowyer Smyth, and afterwards under Mr. Donaghue, until the 6th November 1875, when they were dismissed under G.O., No. 3,028, of 27th October 1875.

2. The establishment was maintained necessarily for the Sub-Engineer on special duty until I was informed that he was to be absorbed in range work.

No. 642. ORDER THEREON, 30th November 1875, No. 3,404.

ESTABLISHMENT, No. 44.

PASSED as a special case.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 643. Read the following letter from Major J. W. HINDLE, Officiating District Engineer, Vizagapatam, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Camp at Vizianagram, 16th November 1875, No. 1,325 :—

I HAVE the honor to forward herewith copy of a letter and its enclosures received from the Executive Engineer in charge of Jeypore Range, setting forth a claim to half travelling allowance for the time he remained at Waltair, and to request you will be so good as to move Government to authorize the Controller of Public Works Accounts to pass the amount.

1 Copy of letter No. 362 of 4th Nov. 1875.
1 Disallowance List.
1 Travelling Allowance Bill.

From K. F. NORDMANN, Esq., Executive Engineer on special duty, Jeypore Ghaut Range, to Major J. W. HINDLE, Officiating District Engineer, Vizagapatam, dated Camp at Ittykavalsa, 4th November 1875, No. 362.

I HAVE the honor to submit, for your information, the enclosed travelling allowance bill and disallowance list, from which it appears that the Controller disallows my half travelling from 1st to 26th June, and besides retrenches the sum of Rupees 50, my travelling allowance from 22nd to 31st May, which had been previously audited and paid.

2. The delay in the matter was caused by the circumstance that my travelling allowance bill for June was not submitted until after my return from privilege leave in September.

3. My permanent head-quarters, as Jeypore Range Officer, being at Vizianagram, I moved with my office into Waltair (32 miles) on the 21st May, in order to be near the District Engineer's Office, as I had temporary charge of the district. I had the tents with me and my travelling equipage of course complete, and the Controller (correctly, I think,) passed my full travelling allowance from the 22nd to the 31st which he has however retrenched.

4. I did not travel during these ten days, at least not beyond Vizagapatam (4 miles), as the work on the ghaut had been stopped, and I had two offices to look after; one, the District Engineer's, being new to me and requiring in consequence some extra application to office work; and the other, the Ghaut Office, being inefficiently manned, as I have frequently reported, the Accountant being fully one-half his time sick so that much of his own proper work falls upon my shoulders.

5. I had made arrangements for examining the Kondakirla Ava Irrigation Project on the spot, and for inspecting other works in the Southern Range in the beginning of June, when news came that you had curtailed your leave and would return before its expiration. I countermanded my orders about the proposed tour of inspection in consequence, and handed back charge of the district to you on the 10th June.

6. Then, being about to proceed on privilege leave, I did not go back to Vizianagram, but stayed at Waltair to save loss of time by moving the Range Office back. I finished the plans and estimates that had been called for, closed the accounts of the past working season on the ghaut, handed over charge of the range to you on the 26th, and proceeded on leave on the 27th June.

7. Having kept up my full travelling establishment from the 1st to the 26th at Waltair (not my head-quarters), and having been compelled by the nature of my duties to remain stationary, or at least not to travel further than Vizagapatam during that period, I claimed half travelling or

halting allowance, which the Controller however declines to pass, retrenching besides ten days' full travelling allowance in the previous month which had been already passed.

8. On a former occasion, under similar circumstances, the Government were pleased (G.O., No. 2,733, dated 10th November 1873,) to sanction half the daily rate of travelling allowance; and I beg that you will ask the Government to extend that order to the present case.

No. 644. ORDER THEREON, 30th November 1875, No. 3,405.

ESTABLISHMENT, No. 45.

MR. NORDMANN was allowed to draw half travelling allowances while employed on duty connected with the Vizagapatam Harbour, which took him away from his own head-quarters. No such plea is available in the present occasion, when he comes under the ordinary rules of the department.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following letters :—

No. 645. From Lieutenant-Colonel R. MURRAY, Officiating Director-General of Telegraphs in India, to Major-General G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department, dated Calcutta, 10th November 1875, No. 2,900.

I HAVE the honor to acknowledge the receipt of the plans of the proposed building for the accommodation of the Telegraph and Post Offices at Ootacamund, under cover of Madras Government Order No. 251, (Civil Works, No. 21,) dated the 10th September 1875, herewith returned, duly countersigned as approved by me.

2. If the four servants' houses marked on the plan are not intended for this department, as not less than a similar number will be required by it, I would suggest that they be made over to it, and that a like number for the use of Postmaster and his servants be erected in a like position on the opposite side of the Postmaster's quarters.

3. Provision to the extent of Rupees 10,000 has been sanctioned by the Government of India for this work during the year 1876-77, in the currency of which I trust it will be found possible to commence upon and complete the building.

No. 645-A. From H. G. TURNER, Esq., C.S., Acting Postmaster-General, Madras, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 15th November 1875, No. 8,545/2,960.

WITH reference to Government Order No. 2,609, dated 10th September 1875, I have the honor, by direction of the Director-General of Post Office in India, to forward,

for the information of the Government, copy of a communication addressed by him to the Government of India on the subject of the proposed additions to the Post Office at Ootacamund.

From F. R. HOGG, Esq., Officiating Director-General of the Post Office of India, to the Secretary to the Government of India, Financial Department, dated Calcutta, 5th November 1875, No. 5,243.

In continuation of my letter No. 4,035, dated 9th September, submitting the usual Schedule for Postal Public Works during the year 1876-77, I have the honor to offer the following additional remarks in connection with the demand for Madras under the head of Major Works.

2. Certain additions are necessary to the Ootacamund Post Office, which can be made at a cost of about Rupees 3,000; that sum was therefore included in my schedule. Since the submission of the schedule, I have received an "order" from the Government of Madras in the Public Works Department, No. 251, dated 10th September (printed copy enclosed), enclosing a proposal from the District Engineer for the removal of one-half of the present Post Office and the erection of an upper-storied building calculated to provide accommodation for a combined Post Office and Telegraph Office at Ootacamund. I have nothing to urge against this measure, which secures for the Post Office the additional room it requires, and provides also at the same time accommodation wanted by the Telegraph Office.

3. It seems that a new separate Telegraph Office would cost approximately Rupees 16,000, and the proposed combined building can be erected for about Rupees 20,000. The Madras Government have further directed that "entries of Rupees 10,000 should be made in the Budget of each department* for 1876-77." To this I take exception. The additional accommodation required for the Post Office can, as already stated, be provided for about Rupees 3,000, and any further expense entailed by enlarging the building to meet the wants of the Telegraph Department should be budgetted for by that department, and should not form a charge against the Post Office.

* That is, the Post Office and the Telegraph Department.

4. I trust that the Government will bear these remarks in mind when passing orders on the Post Office and Telegraph Public Works Schedules for the year 1876-77.

5. A copy of this letter and of its enclosure will, to save time, be sent direct to the Government of India in the Public Works Department.

No. 646. ORDER THEREON, 30th November 1875, No. 3,406.

CIVIL WORKS, No. 41.

From the above letters it is observed that the plan for a combined Post and Telegraph Office at Ootacamund on the site of the present Post Office appears generally to meet the views of both the Directors-General. The District Engineer will now complete the plan and estimates, and in submitting them to Government he will state in what proportions the outlay should be divided between the two departments.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following paper :—

No. 1,369.

No. 647. *Note by the Chief Engineer for Irrigation.*

IN Government Order of the 16th July last, No. 2,020, an approximate estimate of Rupees 50,000 for the extension of the Pooniar Anicut in South Arcot was sanctioned pending the revision of the estimate,* and the District Engineer has, after making the necessary alterations in the height of the wings and head-works, transmitted an amended estimate amounting to Rupees 56,060, and has explained in the covering letter (No. 159, 12th instant.) what rates have been found capable of reduction, and why other rates noticed as being apparently excessive could not be reduced. In the specification, paragraph 15, it is mentioned that the Pombay head-sluice shutters are to be 5 inches thick ; 3 inches will be more than ample.

* Of Rupees 57,860.

2. No further information has been received regarding the revenue under the channels supplied by this anicut.

(Signed) JOHN MULLINS, Lt.-Col., R.E.,
Chief Engineer for Irrigation.

CAMP AT ROYACHOTY,
19*th November* 1875.

AGRICULTURAL—CAPITAL—ORDINARY.

REVISED ABSTRACT ESTIMATE OF 1875-76.

Class 1, *Pooniar Anicut, South Arcot District, Trikalore Taluq, No.* 1 *Range.*

WORK.—Lengthening Pooniar Anicut and repairing damages done to the same.

Contents.	Particulars.	Rate.	Per	Amount.	Total.
	ANICUT AND HEAD-WORKS.	RS. A. P.		RS. A. P.	RS.
	C.—MASONRY WORKS.				
	Lengthening the Anicut.				
136	Wells of 3 feet inner diameter and 5 feet deep filled with hydraulic concrete	22 8 0	Each.	3,060 0 0	
62	Do. of 3½ do. do. do. ...	24 8 0	”	1,519 0 0	
13,260	Cubic feet, brick in hydraulic mortar.	0 2 2	C. ft.	1,796 10 0	
100$\frac{20}{27}$	Cubic yards of concrete do. do. ...	2 6 8	C. yd.	243 7 3	
523$\frac{10}{27}$	Do. of rough stone work do.	3 0 0	”	1,570 1 9	
271	Do. of cut stone work do. ...	13 0 0	”	3,523 0 0	
5,760	Do. of rough stone work do.	1 8 0	”	8,640 0 0	
23·80	Squares of plastering two coats render and set	3 6 0	Sqre.	80 5 2	
				20,432 8 2	

WORK.—Lengthening Pooniar Anicut and repairing damages done to the same.—
(*Continued.*)

Contents.	Particulars.	Rate.			Per	Amount.			Total.
	Constructing Under-sluices.	RS.	A.	P.		RS.	A.	P.	RS.
14	Wells of 4 feet inner diameter and 6 feet deep filled with hydraulic concrete	33	0	0	Each.	462	0	0	
115	Do. of 3½ do. do. do. ...	28	14	0	"	3,320	10	0	
22,272	Cubic feet of brick in hydraulic mortar	0	2	2	C. ft.	3,016	0	0	
336	Do. of archwork in do. do. ...	0	2	8	"	56	0	0	
342	Cubic yards of concrete in do. do. ...	2	6	8	C. yd.	826	8	0	
95	Do. of cut stone in do. do. ...	13	0	0	"	1,235	0	0	
674 7/9	Do. of rough stone work for apron	1	8	0	"	1,012	2	8	
54 4/9	Cubic yards of rough stone work for revetment	1	8	0	"	81	10	8	
43·46	Squares of plastering two coats of hydraulic mortar	3	6	0	Sqre.	146	10	9	
12	Beam stones	8	0	0	Each.	96	0	0	
6	Teakwood shutters (needles) with iron straps round top and bottom complete	62	0	0	"	372	0	0	
	Cost of eighteen wells which were already sunk, but abandoned to suit revised design	...			...	441	0	0	
	Excavating foundation	...			...	1,200	0	0	
	Temporary dams	...			...	800	0	0	
	Baling water...	...			...	1,600	0	0	
						35,098	2	3	
	Sundries and superintendence ...	7	0	0	Cent.	2,451	13	9	
						37,550	0	0	
	Miscellaneous.								
	Temporary road to quarries	...			...	300	0	0	
	Total, HEAD-WORKS ...	...			...	...			37,850
	MAIN CANAL AND BRANCHES								
	D.—REGULATORS, MASONRY WORKS.								
	Constructing a Head-sluice for Pombay Channel.								
95	Wells 3½ feet inner diameter and 5 feet deep filled with hydraulic concrete	24	8	0	Each.	2,327	8	0	
204	Cubic yards of concrete in hydraulic mortar	2	6	8	C. yd.	493	0	0	
14,102	Cubic feet of brick in do. do. ...	0	2	2	C. ft.	1,909	10	4	
98	Cubic yards of cut stone in do. do. ...	13	0	0	C. yd.	1,274	0	0	
124	Do. of rough stone work ..	1	8	0	"	186	0	0	
954½	Cubic feet of archwork of brick in hydraulic mortar	0	2	8	C. ft.	159	0	6	
35·75	Squares of plastering with two coats hydraulic mortar	3	6	0	Sqre.	120	10	6	
20	Beam stones	8	0	0	Each.	160	0	0	
2,016	lbs. of angle iron bearing ...	0	2	0	lb.	252	0	0	

WORK.—Lengthening Pooniar Anicut and repairing damages done to the same.—(Concluded.)

Contents.	Particulars.	Rate.	Per	Amount.	Total.
	Constructing a Head-sluice for Pombay Channel.—(Concluded.)	RS. A. P.		RS. A. P.	RS.
4	Teakwood shutters similar to the present ones with screw gearing ...	200 0 0	Each.	800 0 0	
	Removing old work	...	...	200 0 0	
				7,881 13 4	
	Guard wall.				
45	Wells of 3½ feet inner diameter and 5 feet deep filled with hydraulic concrete	24 8 0	Each.	1,102 8 0	
33	Cubic yds. of concrete in do. mortar.	2 6 8	C. yd.	79 12 0	
10,614	C. feet of brick in hydraulic mortar.	0 2 2	C. ft.	1,437 5 0	
131	Cubic yards of rough stone work for apron	1 8 0	C. yd.	196 8 0	
28	Do. of do. for revetment ...	1 8 0	"	42 0 0	
22·32	Squares of plastering two coats in hydraulic mortar	3 6 0	Sqre.	75 0 0	
	Excavating foundation	...	..	600 0 0	
	Temporary dams	...	...	200 0 0	
	Baling water	...	...	400 0 0	
				12,014 14 4	
	Sundries and superintendence ...	7 0 0	Cent.	845 1 8	
					12,860
	Raising the existing regulating works on the Southern bank.				
5,706	C. feet of brick in hydraulic mortar.	0 2 2	C. ft.	772 11 0	
10	Beam stones	8 0 0	Each.	80 0 0	
				852 11 0	
	Sundries and superintendence ...	7 0 0	Cent.	57 5 0	
					910
	Total, D—MASONRY WORKS ...	...	...	...	13,770
	F.—Earthworks.				
23,257	Cubic yards of earthwork for north embankment	0 1 3	C. yd.	1,816 15 3	
2,904	Do. of do. for south do. ...	0 1 6	"	272 4 0	
174	Do. of do. for road slopes ...	0 1 0	"	10 14 0	
25,501	Do. of do. for south bank of Pombay channel forming river embankment	0 1 0	"	1,593 13 0	
3,971	Do. of do. for bund behind north abutment and wing of head-sluice and guard wall	0 1 0	"	248 3 0	
				3,942 1 3	
	Sundries and superintendence ...	5 0 0	Cent.	197 14 9	
				4,140 0 0	
	Planting nanul	...	...	300 0 0	
	Total, F—*Earthworks*...	...	...	...	4,440
	Total of MAIN CANAL AND BRANCHES ...	...	...	...	18,210
	Total amount of estimate ...	...	...	...	56,060

CUDDALORE,
12th November 1875.

(Signed) H. R. MEAD, Major, R.E.,
District Engineer, South Arcot.

Specification Report to accompany estimate for lengthening the Pooniar Anicut and repairing the damages done to the same near Trikalore in the Trikalore Taluq, South Arcot District.

1. Amount of estimate, Rupees 56,060.

2. Description.—By the cyclone of May 1874, the north embankment connecting the anicut with north bank of river was destroyed, and owing to which the head-sluice of the Pombay channel was destroyed. In consequence of the heavy rains and continuous freshes in the river, nothing could be done to the repair of these works, and the subsequent freshes of July, September, and October considerably enlarged the breach and necessitated the following work :—

3. Anicut.—The anicut is to be continued on same line and section as before and extended for a length of 340 or 389 feet inclusive of scouring sluices, and the rough stone apron of 12 feet wide in rear of the anicut which was entirely carried away is to be replaced and carried on having a uniform breadth of 27 feet throughout from end to end instead of 12. The apron 12 feet broad is found to be insufficient in the loose sandy bed of this river.

4. Under-sluice.—An under-sluice of 6-5 feet vents will be built at the north end of the anicut closing on present river bank. The crest of the anicut being called + 20·00, the floors of this sluice will be 14 feet, that is 1 foot below the present deep bed of river, and 2 feet below apron level, the top of sluice will be horizontal and level with the crest of the anicut as shown on the plan.

5. Guard Wall.—The north wing wall of under-sluice will form a guard wall to connect the anicut with the north embankment, and will be carried up to + 32·60, or 12 feet 7 inches above anicut crest, as directed by the Chief Engineer for Irrigation.

6. Pombay Sluice.—The guard wall will be pierced by the new Pombay channel head-sluice of 4 vents each of 6 feet, the floor of this sluice will be + 16·00, or level with anicut apron and top of walls + 32·60

7. Existing Sluices.—The existing sluices on south bank will all be raised to 32·60.

8. Wells.—The foundation to all masonry works will be on wells of different diameters. The wells under the anicut, head-sluice, and guard wall will be sunk 5 feet deep, and all the rest 6 feet filled with hydraulic concrete.

9. Foundation.—Will all be 4 feet deep above the wells, of varying thicknesses to suit circumstances.

10. Masonry.—All masonry will be of brick in hydraulic mortar, except the main floors, which will be of cut stone from 1 foot to 1½ feet thick.

11. Apron.—The anicut apron will consist of 1 foot cut stone on 2½ feet of rubble masonry and 6 inches concrete backed by 27 feet of rough stone 3 feet thick. The surface of the rough stone apron will be placed 1 foot below that of the masonry apron. To under-sluice there will be a cut stone apron in front and rear and in vents 1 foot thick on 1 foot of brick masonry over 2 feet of concrete backed by a rough stone apron 3 feet thick resting on a layer of concrete 1 foot thick to prevent subsidence; on the rear of this again there will be a rubble stone apron 21 feet in width in rear and 3 feet thick, in front there will also be a rough stone apron of 15 feet width laid on a bed of concrete 1 foot thick, the size of stones used will be not less than 2 cubic feet each. To head-sluice the aprons will be similar to those of under-sluice, and protected in rear and front by rubble stone apron as per plan. The guard wall proper will be protected from head-sluice to its junction with north embankment by a rough stone apron 10 feet broad and 3 feet thick to prevent scour, and at the junction there will be stone pitching as shown in plan.

12. Mortar.—To be composed of 1 lime to 1 of sand and 1 of surki (clay burnt in cakes and ground) carefully ground or pounded; all lime used to be slaked on the work, nothing but mortar of the above description to be used for any part of the work.

13. CONCRETE.—Will be composed of 1 of lime, 1 of sand, and 1 of surki to 6 of broken stone from 1 to 1½ inches cube. which will be mixed dry, *i.e.*, with only so much water as will prevent lime being blown away, when put into water it must be carefully lowered to the bottom in a bucket and gently tilted out, when possible the water should be removed.

14. GROOVES.—To be faced with angle iron 3½ inches × 3½ inches for the head-sluice. No grooves required for surplus sluices.

15. SHUTTERS.—All to be of well seasoned teakwood, those for under-sluice will be baulks or needles properly bounded with iron straps at each end. The shutters for head-sluice will be plank shutters 5 inches* thick and worked by screw gearing; plans for this will be made hereafter.

* 3 inches will be ample.

16. EMBANKMENT AND NANUL.—Will all have slopes of 3 to 1 and 2 to 1, and the outer slopes will be thickly planted with nanul, as also the vacant ground along the foot of embankments for at least 10 yards in breadth.

CUDDALORE,
12*th November* 1875.

(Signed) H. R. MEAD, Major, R.E.,
District Engineer, South Arcot.

No. 648. ORDER THEREON, 30th November 1875, No. 3,407.

IRRIGATION, No. 62.
Account.

THE revised estimate of Rupees 56,060 for the Pooniar Anicut in South Arcot is sanctioned in lieu of the approximate estimate of Rupees 50,000, on which under G.O., No. 2,020, of the 16th July 1875, the extension and improvements were allowed to be proceeded with.

2. The revenue and other information called for in paragraphs 2 and 3 of the above order will be awaited, and its submission should be expedited as far as may be practicable.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 649. Read the following letter from Lieutenant D. McN. CAMPBELL, R.E., Executive Engineer in charge of the Kistna District, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, Public Works Department, dated Masulipatam, 8th November 1875, No. 90:—

WITH reference to G.O., No. 2,801, dated 29th September 1875, I have the honor to inform you that an error has been discovered in the estimate as per margin; instead of 112·78 lbs., of brass work at 20 Rupees per 25 lbs., giving cost Rupees 90-3-6, the Estimator by an oversight entered the rate at Rupees 20 per 1 lb. giving cost Rupees 2,255-8-7. The estimate should therefore be reduced to Rupees 936; * but since it was framed the Bezwarah Work-

	RS.
Improvements to the head sluice of Nizampatam Canal east side Channel	3,515
Deduct over-estimate including proportion of sundries and future increased allowance 10 per cent...	2,579
	* 936

shop rate for teakwood wrought and put up has increased from Rupees 2-8-0 to Rupees 3-8-0 per cubic foot, consequently the estimate corrected both for brass work and wood work amounts to Rupees 1,010 instead of Rupees 3,515.

The total cost of the east side channel improvements will therefore be as follows :—

	RS.
Earthwork	6,040
Head sluice improvements	1,010
Minor masonry works	2,000
	9,050

The whole of this sum can be expended in this year. I therefore request that if possible the full allotment be given. The work has already been commenced, and as a good deal of labor is available at present I have no doubt it will soon be completed.

2. I may mention that the estimate for the improvements to head sluice was included in my Budget for next year, it can now of course be omitted.

No. 650. ORDER THEREON, 30th November 1875, No. 3,408.

IRRIGATION, No. 63.

THE amount of the estimate for extending the eastern side channel of the Nizampatam Canal will be altered from Rupees, 11,555 to Rupees 9,050, and as the Executive Engineer in charge, Kistna District reports that the work can be rapidly completed, the Government of India will be requested to make the amount available.

2. Ordered that the following letter be sent.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 651. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Government of India, P.W.D., (Irrigation Branch), dated 30th November 1875, No. 3,409.

IRRIGATION, No. 64.

No. 2,801 of the 29th September 1875.
„ 3,408 of the 30th November „

SIR,—With reference to the Assistant Secretary's letter No. 323 I, of the 13th September last, I am directed to transmit copies of the Proceedings of this Government as per margin, and to request that a supplemental grant of Rupees 9,050, under Agricultural Ordinary, may be made to meet the cost of the Nizampatam Canal eastern side channel extension. It will be seen that the estimate has been reduced to the above amount from Rupees 11,555.

No. 652. Read the following Proceedings of the Board of Revenue, dated 17th November 1875, No. 3,132 :—

Read the following letter from H. SEWELL, Esq., Acting Collector of Trichinopoly, to H. E. STOKES, Esq., Acting Secretary to the Board of Revenue, dated 12th October 1875, No. 258.

I HAVE the honor to report upon the progress made in the construction and repair of public works in this district during the official year 1874-75.

2. The annexed statement exhibits the expenditure incurred under the different heads as compared with the amount allotted in the budget and the expenditure of the preceding year :—

Description.	Current Year's Expenditure as compared with the Budget Allotment.				Current Year's Expenditure as compared with that of the preceding Year.			
	Budget Allotment.	Expenditure.	Increase.	Decrease.	Last Year.	Current Year.	Increase.	Decrease.
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
New Works.								
Agricultural	4,000	3,758	...	242	4,851	3,758	...	1,093
Buildings { Military...	26,341	25,315	...	1,026	15,279	25,315	10,036	...
Buildings { Civil ...	1,16,915	1,07,071	...	9,844	34,585	1,07,071	72,486	...
Total, New Works...	1,47,256	1,36,144	...	11,112	54,715	1,36,144	82,522	1,093
Net ...	...	...	...	11,112	...	...	81,429	...
Repairs.								
Agricultural	1,14,000	1,13,682	...	318	51,632	1,13,682	62,050	...
Buildings { Military...	17,431	12,827	...	4,604	13,240	12,827	...	413
Buildings { Civil ...	3,067	2,452	...	615	2,012	2,452	440	...
Total, Repairs ...	1,34,498	1,28,961	...	5,537	66,884	1,28,961	62,490	413
Net ...	...	...	...	5,537	...	...	62,077	...
Grand Total ...	2,81,754	2,65,105	...	16,649	1,21,599	2,65,105	1,45,012	1,506
Net ...	...	...	...	...	...	...	1,43,506	...

3. The total expenditure fell short of the budget allotment by Rupees 16,649 and exceeded the expenditure of the preceding year by Rupees 1,43,506.

4. NEW WORKS—AGRICULTURAL.—The expenditure under this head amounts to Rupees 3,758. This sum was utilized in the construction of waste weirs, sluices, head-sluices, distribution sluices, or regulating dams and surplus weirs, &c., for tanks and channels.

5. BUILDINGS—MILITARY.—The expenditure under this head, amounting to Rupees 25,315, was laid out chiefly in the execution of the undermentioned works :—

(*a*.) Quarters for one Sub-Conductor and two Staff Serjeants of Ordnance Department completed. Estimate Rupees 14,400. Expenditure during the year Rs. 9,111.

(*b.*) Latrine of eight seats for the families of the detachment of British Infantry. Estimate Rupees 1,840, and expenditure during the year Rupees 962. The work is completed.

(*c.*) Punkahs for Staff Serjeants and family quarters, Royal Artillery. Estimate Rupees 800. Expenditure Rupees 800. The work is completed.

(*d.*) Recreation and coffee rooms for the detachment of British Infantry. Estimate Rupees 6,062. Expenditure Rupees 5,541. The work is in progress.

(*e.*) Enclosing back verandah behind each quarter to form a separate bath-room for each family of the detachment of British Infantry. Estimate Rupees 520. Expenditure Rupees 519. The work is completed.

(*f.*) Reroofing surgery building at Trichinopoly. Estimate Rupees 630. Expenditure Rupees 300. The work is in progress.

(*g.*) Stop and marker's butts for a new rifle range at Trichinopoly and altering the line of present range. Estimate Rupees 670. Expenditure during the year Rupees 157. The work is completed.

(*h.*) Recochet butts. Estimate Rupees 240, and expenditure Rupees 240. The work is completed.

(*i.*) Erecting flagstaff on the rock fort at Trichinopoly. Estimate Rupees 380. Expenditure Rupees 376. The work is completed.

6. Buildings—Civil.—The sum of Rupees 1,07,071 was expended under this head. The following are the principal works executed during the year :—

(*a.*) Sub-Magistrate's cutcherry and jail with out-houses at Kulitalai. The estimate was Rupees 28,621, and expenditure up to the end of the year Rupees 28,616. The work was completed and handed over to the Revenue Department.

(*b.*) Alterations to the Nàwab's palace at Trichinopoly for the Tahsildar's cutcherry and certain other public offices. The work was commenced in December 1873. Revised estimate Rupees 36,200, and expenditure up to the end of the year Rupees 35,705. The work has almost been completed, the restoration of the buildings has proved a great success, and the offices will be extremely commodious.

(*c.*) Deputy Tahsildar's cutcherry and sub-jail at Toraiyur. Estimate Rupees 11,826, and expenditure up to the end of the year Rupees 10,232. The work has been completed.

(*d.*) Sub-jail and lock-up at Kilapalur, Deputy Tahsildar's station in the Udaiyarpalaiyam Taluq. The work was commenced in January 1874 and completed in March 1875 at an aggregate cost of Rupees 4,533.

(*e.*) Deputy Collector's cutcherry at Ariyalur. Estimate Rupees 4,100, and expenditure Rupees 3,937. The work has almost been completed.

(*f.*) Two small and two large wards, together with a Police guard-room, &c., at Jeyemkondasolapuram, head-quarters of the Udaiyarpalaiyam Taluq. Estimate Rupees 4,700, and expenditure Rupees 4,739. The work has been completed.

(*g.*) Block No. 6 in the central jail at Trichinopoly was enlarged at a cost of Rupees 3,997.

(*h.*) A portion of the district jail formerly used as workshops was converted into a sub-jail at an outlay of Rupees 2,566, and further partition walls have been raised separating the sub-jail from the district jail at an expenditure of Rupees 470.

(*i.*) Two large and two small wards, together with a Police guard-room, at Ariyalur. Estimate Rupees 8,450. Work executed amounts to Rupees 8,130.

7. The works repaired during the year were of the following character:—

Agricultural.	
Irrigation channels	31
Tanks	106
Embankments or dykes	8
Anicuts (weirs)	9
Distributaries	29
Buildings.	
Military, repaired and maintained	30
Civil, do. do.	10

8. The outlay of Rupees 1,13,682 on agricultural repairs was utilized in repairing and improving sluices, irrigating dams, dykes, groynes, calingulahs, anicuts, and stone revetments, clearing the silt, cutting new channel heads, closing breaches, widening channels, replacing and repairing shutters, raising, widening, and repairing channel and tank banks, planting nanul, wild cane, and nir nochi stalks, removing islands formed in river beds, removing projecting portions of padugias, and altering river banks so as to improve the set of the current.

The accompanying statement, giving the description of each work and the amount expended on it, is herewith submitted for Board's information.

The usual statement, showing the irrigation works in this district, is appended. Out of 4,502 works only 348 are reported to be out of order. This shows an improvement on last year, where the number was 419 :—

Description.	In Repairs.	Out of Repairs.	Total.
Large Tanks...	343	89	432
Small do.	590	14	604
Irrigating Channels	827	53	880
Supplying do.	766	43	809
Dams	59	7	66
Bridge	274	5	279
Tank Sluices...	594	74	668
Channel Sluices	455	41	496
Calingulahs	246	22	268
Total ...	4,154	348	4,502

ENCLOSURE No. 1.—Statement.

SUBMITTED for the information of Government.

2. The total expenditure on public works from Imperial and Provincial Funds during the year 1874-75 amounted to Rupees 2,65,105 against an allotment of Rupees 2,81,754, or ninety-four per cent., which is satisfactory. The outlay exceeded that of the previous year by Rupees 1,43,506 owing mainly to increased expenditure under the heads of New Civil Buildings and Agricultural Repairs. The statement prescribed by Circular Memorandum, No. 1,678, dated 14th October 1874, has not been furnished.

3. The expenditure on Agricultural New Works was only Rupees 3,758, but Rupees 1,13,682 were laid out on repairs, a sum, Rupees 62,050, in excess of the previous year's outlay. A large number of irrigation channels and tanks were cleared, weirs improved, and sluices put in order; the allotment seems to have been well utilized, and out of 4,502 irrigation works in the district only 348 are reported to be out of order.

4. On Military Buildings Rupees 25,315 were expended on New Works chiefly in connection with the improvement of family quarters and provision of recreation rooms, and Rupees 12,847 on Repairs. The outlay on Civil Buildings, New Works, was Rupees 1,07,071, or Rupees 72,486 in excess of the previous year's expenditure. Several important works are reported to be either complete or approaching completion. The outlay on repairs was inconsiderable.

1. Sub-Magistrate's Cutcherry and Jail at Kulitalai.
2. Alterations to the Nàwab's Palace.
3. Deputy Tahsildar's Cutcherry at Toraiyur.
4. Sub-Jail and Lock-up at Kilapalur.
5. Deputy Collector's Cutcherry at Ariyalur.
6. Provision of Police and Jail accommodation at Jeyemkondasolapuram, Ariyalur, and District and Central Jails, Trichinopoly.

5. There was no expenditure from Imperial or Provincial Funds on Communications, and the Collector has not noticed the outlay from Local Funds. His attention is drawn to G.O., dated 16th July 1874, No. 1,174, Financial Department, in accordance with which some information on the subject should have been afforded.

(A true Copy and Extract.)

(Signed) C. A. GALTON,
Acting Sub-Secretary.

ORDER THEREON, 30th November 1875, No. 3,410.

No. 653.

ESTABLISHMENT, No. 46.

COMMUNICATED to the District Engineer, Trichinopoly.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

Read the following papers :—

No. 654. Proceedings of the Madras Government in the Public Department, dated 1st October 1875, No. 1,226.

No. 655. Proceedings of the Madras Government in the Ecclesiastical Department, dated 1st October 1875, No. 242.

No. 656. Proceedings of the Madras Government in the Educational Department, dated 1st October 1875, No. 339.

No. 657. Proceedings of the Madras Government in the Judicial Department, dated 1st October 1875, No. 2,133.

No. 657-A. Proceedings of the Madras Government in the Marine Department, dated 1st October 1875, No. 341.

No. 657-B. Proceedings of the Madras Government in the Financial Department, dated 1st October 1875, No. 1,941.

No. 657-C. Proceedings of the Madras Government in the Revenue Department, dated 13th November 1875, No. 1,638.

No. 657-D. From Captain L. CONWAY-GORDON, R.E., Controller of Public Works Accounts, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 24th November 1875, No. 150 W.

WITH reference to Proceedings of Government, No. 270, dated 19th Novembe 1875, I have the honor to submit a revised classification of Provincial outlay.

2. I have carried out to the letter the recommendations embodied in the Proceedings of Government in various departments forwarded with the Proceedings above quoted, with this single exception, that I have introduced an additional sub-head "*Marine Department*" under the main head "*Civil Buildings*," instead of introducing a sub-head "Marine Buildings" under *Miscellaneous Public Improvement*, this arrangement seeming more in accordance with the general scheme of classification.

3. I have also introduced a few trifling alterations not included in the recommendations above referred to; thus, under each sub-head I have introduced a new section, "*Miscellaneous*," to meet cases not otherwise provided for; under "*Police Department*" (*Civil Buildings*) I have added a section for "*Offices*;" under "*Educational*" I have substituted "*Universities and Colleges*" for "Colleges;" and under "*Medical*," "*Hospitals and Infirmaries*," for "*Hospitals*;" under "*Public Works*" I have omitted the section "Residences" as being unnecessary; and I have added under "*Civil Buildings*" a sub-head "*General purposes*" to meet the case of buildings in the joint occupation of two or more departments.

4. I return the enclosures received with your letter under reply.

CLASSIFICATION OF PROVINCIAL OUTLAY.

CLASS. MAIN HEAD. *Sub-head.* Section.

ORIGINAL WORKS.

CIVIL BUILDINGS.

(Imperial Services.)

Judicial Department.

Court Houses.

Miscellaneous.

Revenue Department.

General, District and Divisional Kachéris.

Taluq Kachéris.

Miscellaneous.

Customs Department.

Custom-houses.

Huts (Preventive Service).

Miscellaneous.

Salt Department.

Depôts and Superintendents' Kachéris.

Huts (Preventive Service).

Miscellaneous.

(Provincial Services.)

Prisons Department.

Central Jails.

District Jails.

Lock-ups.

Miscellaneous.

Police Department.

Offices.

Stations.

Huts.

Miscellaneous.

Educational Department.

Universities and Colleges.

Schools.

Miscellaneous.

Medical Department.

Hospitals and Infirmaries.

Dispensaries.

Lunatic Asylums.

Miscellaneous.

Marine Department.

Ecclesiastical Department.

Churches.

Cemeteries.

Miscellaneous.

Public Works Department.

Offices.

Workshops and Factories.

Miscellaneous.

General Purposes.

Government Houses and Residences.

Charitable Institutions.

Scientific do.

CLASS. MAIN HEAD. *Sub-head.* Section.

COMMUNICATIONS.

Main Roads.

District Roads.

Canals.

MISCELLANEOUS PUBLIC IMPROVEMENT.

Inland Improvement.

Improvement to Towns.

Water-supply.

Drainage.

Miscellaneous.

Aids to Marine Navigation.

Harbours.

Light-houses.

Miscellaneous.

REPAIRS (under same heads as Original Works).

ESTABLISHMENT.

TOOLS AND PLANT.

PROFIT AND LOSS.

SUSPENSE ACCOUNTS.

No. 658. ORDER THEREON, 30th November 1875, No. 3,411.

ACCOUNT, No. 20.

IN paragraph 4 of his letter recorded with G.O., No. 2,573, dated 8th September 1875, the Controller of Public Works Accounts suggested the advisability of settling authoritatively the classification of Provincial Works. The several departments concerned were accordingly consulted, and their replies were referred to the Controller, who now submits a revised statement embracing the recommendations made and proposing certain amendments of the statement printed with the orders above quoted. The revised statement is approved for adoption, and will in future be strictly followed in the preparation of Budgets, Estimates, and Accounts.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 659. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 25th November 1875, No. 637 :—

WITH reference to the Order of Government, under date 1st November 1875, No. 3,088, I have the honor to report that the Agent of the Madras Railway has nominated the Locomotive Superintendent, Mr. Barton Wright, to represent that Company in the Committee to be held at Delhi for conducting experiments in embarking and disembarking troops and war material on to and from railway trains. Mr. Elwin suggests that the Traffic Manager, Mr. H. E. Church, should also attend

the meeting, explaining that although the Locomotive Superintendent is the officer who comes strictly within the definition laid down by the Government of India as being "fully acquainted with carriage and wagon building," yet the duty of embarking and disembarking troops would in case of actual necessity more nearly concern the Traffic Department. I beg to recommend this suggestion for the approval of Government.

2. The Agent of the South Indian Railway has nominated Mr. E. G. Sheward, Locomotive Superintendent, to attend the Committee.

3. It is desirable that the earliest intimation should be given to the Railway Companies of the date that may be fixed for the assembling of the Committee, and I request that this may be communicated to me as soon as possible.

No. 660. ORDER THEREON, 30th November 1875, No. 3,412.

RAILWAY, No. 74.

THE Governor in Council approves of the nomination made. The Government of India will be addressed as to the date on which the presence of the officers may be required.

(Signed) G. W. WALKER, Major-General, R.E.,
Secretary to Government.

No. 661. From the Secretary to the Government of Fort St. George, Public Works Department, to the Secretary to the Government of India, P.W.D., dated 30th November 1875, No. 3,413.

RAILWAY, No. 75.

SIR,—In continuation of my No. 3,089, dated 1st November 1875, I am directed to forward a copy of the accompanying Proceedings on a letter from the Consulting Engineer for Railways, in which certain officers of the Railway Companies are nominated to attend the Committee to be held at Delhi.

2. I am to request that early intimation may be given of the date that may be fixed for the assembling of the Committee.